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Rutheford B Campbell, Jr., *The Impact of Modern Finance Theory in Acquisition Cases*, 53 Syracuse L. Rev. 1 (2003).

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The Impact of Modern Finance Theory in Acquisition Cases

Notes/Citation Information

Syracuse Law Review, Vol. 53, No. 1 (2003), pp. 1-56

THE IMPACT OF MODERN FINANCE THEORY IN ACQUISITION CASES

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[†] Alumni Professor of Law, University of Kentucky. The author is indebted to Shawn Allen Bailey, Mary Shannon Bishop, Rodney D. Chrisman, Jonathan R. Helton and Cassidy E. Ruschelle for their research assistance, and to William W. Bratton, Robert W. Hamilton, Donald J. Mullineaux, John M. Rogers and Allan W. Vestal for their thoughtful comments on various early drafts of this article.

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INTRODUCTION

In February of 1983, the Supreme Court of Delaware decided *Weinberger v. UOP, Inc.*¹ The case holds that, in determining the present value of a corporation involved in an acquisition, courts are free to use "any techniques or methods [of valuation] which are generally considered acceptable in the financial community"²

The rule in Delaware prior to *Weinberger* required courts to determine the present value of a corporation by use of the Delaware block method of valuation³ exclusively.⁴ The Delaware block method, however, is a poor way to determine the present value of a corporation.⁵ As a result, even

1. 457 A.2d 701 (Del. 1983).

2. *Id.* at 713.

3. See, e.g., Note, *Valuation of Dissenters' Stock Under Appraisal Statutes*, 79 HARV. L. REV. 1453, 1468-71 (1966) (discussing Delaware's use of the weighted average or Delaware block approach). Under the Delaware Block valuation methodology, up to four factors are considered. *Id.* The factors are earnings value, asset value, market value and dividend value. *Id.* Each value is determined and then weighted to arrive at the final value for the company. *Id.*; see also, e.g., Steven Rogers, Note, *The Dissenting Shareholder's Appraisal Remedy*, 30 OKLA. L. REV. 629, 632-43 (1977) (discussing the use by courts of the weighted average approach).

4. See, e.g., *Tri-Continental Corp. v. Battye*, 74 A.2d 71, 72 (Del. 1950); see also *Paskill Corp. v. Alcoma Corp.*, 747 A.2d 549, 554-55 (Del. 2000) ("Tri-Continental was decided at a time when the Delaware Block Method was the exclusive basis for calculating the value of a corporation in an appraisal proceeding.").

5. See *infra* discussion accompanying notes 137-38.

before the *Weinberger* decision, commentators⁶ had sharply criticized the methodology, and Delaware courts occasionally had strayed from a rigid application of this mandated valuation method.⁷ The *Weinberger* opinion, therefore, offered a welcome opportunity to move away from this tired and unsound valuation methodology. Courts, it seemed, were encouraged to develop a new common law of valuation, one that was informed by sensible, modern finance theory.⁸

This article examines the extent to which courts in corporate acquisition cases have, since the date of *Weinberger*, incorporated modern finance theory into their decisions. The data that are the focus of the article are derived from seventy-six decisions rendered after *Weinberger*.⁹ The

6. See, e.g., Elmer J. Schaefer, *The Fallacy of Weighting Asset Value and Earnings Value in the Appraisal of Corporate Stock*, 55 S.CAL. L. REV. 1031, 1032 (1982) (“[T]he weighting method consistently underestimates the value of corporate shares . . .”). *Id.* at 1032. Later commentators continued to criticize the Delaware block method. See, e.g., Joseph Evan Calio, *New Appraisals of Old Problems: Reflections on the Delaware Appraisal Proceeding*, 32 AM. BUS. L.J. 1, 38-41 (1994) (restating many of the earlier criticisms of the Delaware block method).

7. For example, under the Delaware block method, the earnings value component was to be calculated by using the company’s historical earnings. Calio, *supra* note 6, at 38. In *David J. Greene & Co. v. Dunhill Int’l, Inc.*, however, after recognizing that the “settled law in Delaware [is] that earnings value is to be determined on the basis of past and not on prospective earnings,” the Delaware Chancery Court went on to add that it was not “obliged to blindly use past earnings without reference to other factors of record.” 249 A.2d 427, 433 (Del. Ch. 1968). In another example, *Universal City Studios, Inc. v. Francis I. duPont & Co.*, the Supreme Court of Delaware authorized the use of a higher than normal multiplier, due in part to the fact that projected earnings exceeded the historical earnings of the company. 334 A.2d 216, 220 (Del. 1975) (The court found “[t]he steady upward trend in Universal’s earnings and the vast amount of money guaranteed to inure to Universal are persuasive factors indicating future economic success and stability.”).

8. A number of articles in recent years have addressed various problems encountered by courts when they are called upon in corporate acquisitions to quantify the obligation of fairness owed to shareholders affected by the transaction. See generally, e.g., Rutheford B. Campbell, Jr., *Fair Value and Fair Price in Corporate Acquisitions*, 78 N.C. L. REV. 101 (1999) (articulating definitions of fair value and fair price); Barry M. Wertheimer, *The Shareholders’ Appraisal Remedy and How Courts Determine Fair Value*, 47 DUKE L.J. 613 (1998) (A sweeping exposition of the manner in which courts handle some of the most difficult and prevalent issues that arise in appraisal proceedings). A number of these articles have dealt with the historical and appropriate present day purposes of statutory appraisal proceedings. See generally Randall S. Thomas, *Revising the Delaware Appraisal Statute*, 3 DEL. L. REV. 1 (2000); Peter V. Letsou, *The Role of Appraisal in Corporate Law*, 39 B.C. L. REV. 1121 (1998); Robert B. Thompson, *Exit, Liquidity, and Majority Rule: Appraisal’s Role in Corporate Law*, 84 GEO. L.J. 1 (1995); Mary Siegel, *Back to the Future: Appraisal Rights in the Twenty-First Century*, 32 HARV. J. ON LEGIS. 79 (1995).

9. Throughout this article, the text and the footnotes refer to a data base of seventy-six cases. All of the cases in this data base are listed in the table in the Appendix to this article. The table in the Appendix also provides information supporting Table 1 through Table 18 in the text.

cases involve corporate acquisitions where shareholders either exercised their appraisal rights or challenged the acquisition under fiduciary duty rules, and courts, as a result, were required to determine the value of the corporation or the shareholders' proportionate interest in the corporation.

The conclusions from the data are not very encouraging. In short, courts since *Weinberger* have, to a significant extent, failed to base their opinions on modern finance theory. For example, the data indicate that courts in only about one-third of their opinions relied on the discounted cash flow valuation methodology, the valuation method broadly accepted in modern finance theory.¹⁰ The data show that other inappropriate and unsound methodologies, such as the weighted average method¹¹ and asset valuations,¹² continue to be used in a large percentage of all decisions.

The opinions from which the data are derived also reveal the struggle that courts have in rendering these valuation decisions. Too often in the cases, one finds courts facing overwhelmingly complex, tedious, and extreme evidence of value offered by the parties' experts, evidence that in its worst form becomes essentially unmanageable and incredible for even the most skillful judges. This problem of the "dueling experts" further complicates the job of the courts and makes it more difficult to reach a sensible decision in the particular case and, more broadly, to develop a sensible common law of valuation.

Notwithstanding these past failures and difficulties, courts are entirely capable of developing a workable and theoretically sound common law of present value. This cannot be accomplished, however, within the existing framework of extreme flexibility articulated in *Weinberger*.¹³ Indeed, if *Weinberger* teaches us anything after twenty years, it is that a sensible body of common law respecting the determination of present value cannot develop without courts' articulation of concrete rules informed by modern finance theory.

Part I of the article offers a brief overview of modern present value theory, which in turn furnishes a framework for the exposition of the data and the subsequent critical evaluations and prescriptions that are offered. Part II of the article describes five categories of valuation methodologies

10. See *infra* notes 15-18, 87 and accompanying text.

11. See *infra* notes 78-83, 137-38 and accompanying text (describing and criticizing this methodology).

12. See *infra* notes 69-71, 134-36 and accompanying text (describing and criticizing this methodology).

13. One finds occasional cases in which courts utilize a single mandatory valuation regime. See, e.g., *Steiner Corp. v. Benninghoff*, 5 F. Supp. 2d 1117, 1123 (D. Nev. 1998) (holding that valuation would be determined only under the weighted average method).

used in this piece to classify the data. With these foundations laid, Part III presents the data regarding courts' valuation methodologies utilized in cases decided after *Weinberger*. And, finally, Part IV offers interpretations and explanations of the data and suggests how courts might facilitate a transition to judicial resolutions that are more in line with modern finance theory.

I. A BRIEF LOOK AT PRESENT VALUE THEORY

This section describes the fundamentals of modern present value theory and offers a series of relatively simple rules or concepts about which there is broad agreement among financial economists.

The purpose here is not to present any exhaustive restatement of modern present value theory.¹⁴ Rather, this section is intended to provide a framework for the exposition and discussion of the data and to support interpretative and critical points offered later in this article.

A. Valuation Based on Discounted Cash Flows

To the financial economist, present value of an asset, including a company or a partial ownership interest in the company, is determined by projected cash flows discounted by an appropriate factor.¹⁵ This approach is broadly agreed upon by financial economists¹⁶ and thus, for example, is the basis for a major portion of modern corporate finance books, such as Professors Brealey and Myers's standard text, *Principles of Corporate Finance*.¹⁷ For an evaluator, including a court, to arrive at a sound estimate

14. Dean Samuel C. Thompson has done this, however, in his fine article, *A Lawyer's Guide to Modern Valuation Techniques in Mergers and Acquisitions*, 21 J. CORP. L. 457 (1996).

15. See RICHARD A. BREALEY & STEWART C. MYERS, *PRINCIPLES OF CORPORATE FINANCE* 113-15 (5th ed. 1996) [hereinafter BREALEY & MYERS].

16. There are, of course, numerous outstanding books that explicate modern finance theory and modern theory regarding present value. See generally BREALEY & MYERS, *supra* note 15; EUGENE F. GRIGHAM ET AL., *FINANCIAL MANAGEMENT THEORY AND PRACTICE* (9th ed. 1998); STEPHEN A. ROSS ET AL., *CORPORATE FINANCE* (6th ed. 2002).

For reference and authority in this paper, the author has chosen to rely principally on BREALEY & MYERS and thus will offer only occasional reference to any of the other texts listed above.

17. See BREALEY & MYERS, *supra* note 15, at 11. In their book, the authors begin their introduction of present value by applying present value to more usual assets, such as apartment buildings or office buildings. See, e.g., *id.* at 11-12. They later utilize the discounted cash flow method to value corporate securities and later to businesses as a whole. *Id.* at 59-73. The authors say, at one point, "Value today always equals future cash flow discounted at the opportunity cost of capital." *Id.* at 73.

of present value, therefore, the evaluator must make a sound estimate of cash flows and determine a sound discount rate.¹⁸

The subsections of this paper that follow provide brief discussions of some concepts upon which the discounted cash flow methodology of valuation is based. These particular concepts were selected because they involve matters that recur in court opinions and, unfortunately, are matters about which courts sometimes make theoretical mistakes.

B. Cash Flows

1. Future – Not Historic Cash Flows

Present value of an asset, including a company or share of stock, is determined by the person's (or the market's) expectations regarding the *future* value that the asset will generate.¹⁹ A corollary of this is that *historical* performance is *per se* irrelevant to present value.

Consider, for example, an apartment building. Assume that last year an apartment generated total cash flows (e.g., revenues less expenses) of \$100,000. Due to a dramatic decrease in demand for the apartments in the building (one may assume, for example, that the major employer in the area moved recently), the best estimate of the cash flows from the apartment building for the foreseeable future is \$10,000 per year. A rational purchaser determines the price she or he is willing to pay by reference to the future cash flows (\$10,000 in this case). It is irrelevant to today's price that last year, in very different conditions from those anticipated in the future, the cash flows from the apartment building were ten times the amount anticipated for next year.²⁰

18. See *id.* at 12. In an example that is interesting for this paper, Brealey and Myers start their discussion of present value by considering how one calculates the present value of an apartment house that will be sold in one year for \$400,000. *Id.* They show that the present value in that case amounts to the expected cash flow from the apartment, which in the example they assume is limited to the \$400,000 that will be recognized upon sale, discounted by an appropriate factor. *Id.* Thus, they show the discounted cash flow method makes perfect sense to use even though the particular asset will be sold instead of used to generate revenue over an extended period. *Id.*

19. See Mukesh Bajaj et al., *Firm Value and Marketability Discounts*, 27 J. CORP. L. 89, 91 (2001). This concept is basic to finance. Thus, for example, one group of authors state, while writing about marketability discounts, that "the price of any asset is given by the present value of the cash flows to be received from owning the asset." *Id.*

20. Obviously, in most, or at least many cases, prior performance will give good evidence of what one might expect about the future. But, the important theory is that such history is only evidence of present value (i.e., future cash flows) and not the basis of the value. See SHANNON P. PRATT, ET AL., *VALUING A BUSINESS: THE ANALYSIS AND APPRAISAL OF CLOSELY HELD COMPANIES* 36-37 (3d ed. 1996) (stating that while the theoretically

2. *Cash Flows; Not GAAP Earnings*

Financial economists determine present value by reference to cash flows and not by reference to net earnings computed under generally accepted accounting principles (GAAP).²¹

The difference between cash flows and net earnings under GAAP and the reason present value is aptly determined by cash flows can be explained by reference to non-cash expenses, such as depreciation.²² Assume that in each of the next five years a company with a significant capital asset anticipates annual earnings before depreciation of \$100 and annual depreciation charges at \$10, and the company anticipates that it will have to replace the capital asset during the fifth year at a net cost of \$50. Focusing on the first five years, earnings under GAAP may be calculated at \$90 per year,²³ while actual cash flows amount to \$100 in each of the first four years and \$50 in year five.²⁴

Using GAAP earnings in this example misstates actual cash flows, and importantly, misstates the real value being generated by the company in each of the five years.²⁵ This is best seen by recognizing that in years one through four the entire \$100 in cash flows (not just \$90 in GAAP earnings) could be put to work at a positive rate of return (invested in T-bills, for example). The impact of this mistake, of course, flips in year five when the company generates cash flows of only \$50 (instead of \$90) to use or distribute.

3. *Cash Flows Include Cash Generated by the Sale of Assets*

The cash flows that form the basis for present value of a business include not only the profits from the normal operation of the business but also revenues generated from the sale of any or all of the business's

correct manner of calculating value is to use future cash flows, courts must rely on evidence and historical results, adjusted for reasonable expectations about future results, are often more credible evidence than projections).

21. See BREALEY & MYERS, *supra* note 15, at 113-14.

22. See *id.* at 114.

23. The assumptions here are that an application of straight-line depreciation to the capital assets results in a non-cash depreciation charge of \$10 annually, which amount is then deducted from revenues in arriving at net profits for the year.

24. If one assumes a discount rate of ten percent, the present value of \$90 in each of the next five years amounts to \$341, while the present value of \$100 in each of the next four years, and \$50 in year five, amounts to \$347.

25. Although their article is old, Blum and Katz provide an excellent explanation of this. Walter J. Blum & Wilber G. Katz, *Depreciation and Enterprise Valuation*, 32 U. CHI. L. REV. 236, 236-42 (1965). See also BREALEY & MYERS, *supra* note 15, at 90 ("Cash flows and accounting income are often very different. . . . [T]he accountant's decisions have nothing to do with . . . cash flow. . . .").

assets.²⁶ The point appears, perhaps, so obvious that it need not be stated, but it can come into play in less apparent circumstances.

For example, a court might be asked to determine the present value of a company that has net assets that could be sold one year hence for \$1,000,000. The same company, assume, if it were to continue to operate under the same management, would likely earn annually \$50,000 for as long as one can foresee. In that case, the present value of the business could be determined by assuming that the assets will be sold, in which case present value would be calculated by reference to \$50,000 that would be earned in year one plus the \$1,000,000 that might be received from the sale of all the assets. Alternatively, present value could be determined by assuming that the old managers will continue to operate the business, in which case present value would be calculated by reference to the \$50,000 to be received annually in perpetuity.

The court, of course, must first determine which of the alternative factual assumptions to use; but whichever is selected, the valuation methodology that the financial economist would use to put a present value on the business is exactly the same.²⁷ In each case the cash flows would be discounted.²⁸ In the first instance the cash flows amount to the \$50,000 to be received in the first year plus the \$1,000,000 to be received upon the sale of the assets, and in the second instance the cash flows amount to \$50,000 to be received annually in perpetuity.

4. Cash Flows Include Only Amounts to Which the Party is Entitled

To determine present value of a party's interest in a business, one considers only those cash flows to which the party is entitled. For example, if one contracts to be a residual participant in the cash flows generated by a business, as do the common shareholders of a corporation, the present value of that participant's interest is determined by reference only to the anticipated portion of the cash flows remaining after all prior claimants have been paid.

To use a simple example, if a corporation has total annual revenues of \$100, wages to employees of \$20, interest payments to creditors of \$20 and

26. Brealey and Myers actually use such an example in one of their first basic examples of the discounted cash flow methodology. See BREALEY & MYERS, *supra* note 15, at 11-12.

27. The author previously has written about how the court should determine which of these factual assumptions it should use. See Campbell, *supra* note 8, at 134-52. Courts in determining fair value and fair price should assume that managers will operate the company in a value maximizing manner.

28. *Id.* at 67-72. See notes 15-18, *supra*, and accompanying text.

no further expenses, the present value of the owners' interests in the corporation would be determined by discounting \$60. In that case, the owners have contracted to be paid last among the other claimants and, assuming the owners intend to make no changes in the situation, \$60 is the reasonable anticipation of their annual cash flows.²⁹

C. Discounting to Reflect the Time Value of Money and Risk

A stream of payments to be received over a period of time is worth less than the sum of the payments.³⁰ For example, in our apartment building example above, if one predicts that the apartment building will generate cash flows of \$100 per year for ten years and will at that point have no further earning capacity and no salvage, then a rational investor will not pay \$1,000 (the sum of the cash flows) for the building.

One reason the investor will not give up \$1,000 today for a promise to repay an equal amount of dollars at some future time is because the investor is giving up the use of her or his money for a period of time, which means that the investor must defer consumption or forego a return on the invested sum during the period of time before the investment is repaid.³¹ The investor, therefore, demands a return, because money has a "time value."³² The amount the investor demands as compensation for the time value of money is referred to as the riskless rate of return, since it represents the return demanded for investment that has no risk respecting

29. In calculating the return on an investment, such as common stock, financial economists often consider only dividends. *See* BREALEY & MYERS, *supra* note 15, at 59. Alternatively, they may consider dividends plus growth in the value of the common stock. *Id.* Thus, if a share of common stock pays a \$1 dividend, and it sells at the beginning of a period for \$10 and sells for \$11 at the end of the period, the return on the stock may be calculated as the dividend (\$1) plus the growth in value of the stock (\$1 [ending price] minus \$10 [beginning price]), or \$2, or a 20% return on the investment. *Id.* Cash flows may amount to a sensible approximation of dividends plus growth and thus represent an acceptable proxy for dividends plus growth in present value calculations. *Id.* at 63-72. This is because the portion of cash flows not paid out in dividends is reinvested by management for benefit of shareholders and, assuming proper investment criteria, should generate future value from the investment at least equal to the present value of the reinvested retained earnings. *Id.* at 67-72.

30. In their introduction to present value, Brealey and Myers provide a simple articulation of this point. *See id.* at 12-14.

31. *See id.* at 12 (rate of return includes "the reward that investors demand for accepting delayed payment"). Later in their book, the authors engage in a more sophisticated consideration of the riskless rate of return and its relationship to total market risk. *Id.* at 147 (advancing the notion that the riskless rate of return should be based on "the current interest rate on Treasury bills").

32. *See id.* at 68-69.

the future return.³³

In addition to the riskless rate, the rational investor will demand an additional amount for any risk that is present in an investment.³⁴ Risk is generally understood as volatility or variability of possible outcomes.³⁵ Thus, the more volatile an investment or, stated differently, the wider the dispersion of possible outcomes from the investment, the more risk in the investment and the more return an investor demands.³⁶ The additional return over and above the riskless rate of return that an investor demands for such volatility is referred to as the risk premium.³⁷

Financial economists, therefore, will essentially build a discount rate by first determining the appropriate riskless rate of return and then adding to that rate an appropriate risk premium.³⁸ The first part of this - determining the riskless rate of return - is typically done by reference to government securities, such as treasury bills.³⁹ It is in the determination of the appropriate risk premium, however, where financial economists begin to disagree with one another.⁴⁰

During the last three decades, the theory of the risk premium that has most dominated the discussion among financial economists has been the capital asset pricing model.⁴¹ Under this theory, the risk premium required for an investment in a particular stock is generally considered to involve only a premium for the systematic or market risk, which is the risk that cannot be eliminated by diversification.⁴² The risk premium under the capital asset pricing model is calculated by multiplying the average market-

33. *Id.* at 173-94.

34. Brealey and Myers state as a "basic financial principle" that "[a] safe dollar is worth more than a risky one." *Id.* at 13.

35. Brealey and Myers introduce volatility risk in chapter two of their text, but reserve a more complete treatment for chapters seven through nine. *Id.* at 12-17, 147-235.

36. Although an older work, Wilbur Lewellen provides an excellent explanation of the psychology and economic underpinnings for the demand by investors that they be paid for accepting volatility risk. WILBUR G. LEWELLEN, *THE COST OF CAPITAL* 8-18 (1969). Brealey and Myers provide a discussion of the historical relationship between variability in outcomes and market return on investments. BREALEY & MYERS, *supra* note 15, at 144-48.

37. Brealey and Myers report, for example, that from 1926 through 1994, the average risk premiums on government bonds was 1.4%, on corporate bonds was 2.0%, on the S&P 500 was 8.4%, and on small-firm common stocks was 13.7%. BREALEY & MYERS, *supra* note 15, at 146 tbl.7.

38. *Id.* at 147.

39. *See id.* at 146 tbl.7-1.

40. *Id.* at 148.

41. The capital asset pricing model is described in BREALEY & MEYERS, *supra*, note 15, at 178-88, 990 (A brief definition.).

42. *Id.* at 159-60, 173-88.

wide risk premium by the company's beta.⁴³ Beta is a measure of the sensitivity of an individual security to market movements.⁴⁴

The capital asset pricing model is also an integral part of the weighted average cost of capital method for determining a discount rate.⁴⁵ Under this method, one first determines the company's cost of equity capital, normally by using the capital asset pricing model.⁴⁶ Then, the company's cost of debt is determined, typically by estimating what the company is required to pay for its borrowed money.⁴⁷ The cost of the company's equity and its debt are then weighted by the percentages of the company's total capitalization represented by each of the two components,⁴⁸ and this weighted average cost of capital is used to discount the company's cash flows before any deduction for interest payments.⁴⁹ The result is a present value for the entire stream of earnings or cash flows that are available to service the company's debt and for shareholders.⁵⁰ In essence, one ends up with a present value for the company's debt and equity.⁵¹ Finally, in the typical situation in which the issue is the value of the junior equity, the value of the company's debt is subtracted out, which leaves the value of the shareholders' interest in the company.⁵²

In more recent times, the capital asset pricing model has been challenged by a number of economists,⁵³ and alternative theories have been proposed.⁵⁴ Nonetheless, the capital asset pricing model continues to have

43. See *id.* at 180 ("Expected risk premium on stock = beta x expected risk premium on market").

44. *Id.* at 162, 182.

45. See, e.g., *CEDE & Co. v. Technicolor, Inc.*, No. CIV.A. 7129, 1990 WL 161084, at 28 (Del. Ch. Oct. 19, 1990) (Expert, Professor Rappaport, "used a weighted cost of capital" and apparently used the capital asset pricing model as the basis for computing the company's cost of equity).

46. *Id.*

47. Thompson, *supra* note 8, at 522-23; see also BREALEY & MYERS, *supra* note 15, at 517.

48. Thompson, *supra* note 8, at 522-23; see also BREALEY & MYERS, *supra* note 15, at 517-18.

49. Thompson, *supra* note 8, at 524; see also BREALEY & MYERS, *supra* note 15, at 518-19.

50. Thompson, *supra* note 8, at 524.

51. *Id.* at 524-25.

52. Thompson, *supra* note 8, at 523-25; see also BREALEY & MYERS, *supra* note 15, at 517-21.

53. See, e.g., BREALEY & MYERS, *supra* note 15, at 183-88.

54. See *id.* at 188-94. Brealey and Myers include in their discussion of alternate theories the "consumption capital asset pricing model." *Id.* at 189-90, 195. ("suggest[ing] that security risk reflects the sensitivity of returns to changes in investors' consumption"). And the "arbitrage pricing theory." *Id.* at 190-91, 195. ("Expected risk premium on a stock should depend on the stock's exposure to several pervasive macroeconomic factors.").

its defenders⁵⁵ and continues to draw significant coverage in standard corporate finance treatises.⁵⁶ Brealey and Myers, for example, devote many pages to the capital asset pricing model and its factual and theoretical underpinnings and ramifications.⁵⁷ At one point in their text, they describe the capital asset pricing theory as "the best-known model of risk and return," stating further that the theory is "plausible and widely used."⁵⁸

One should, however, be clear both about the limited nature of this debate and about the areas of present value theory that are the subject of broad agreement among financial economists. The debate here is focused solely on the risk premium and the matter of whether the relationship between risk and return is best captured by the capital asset pricing model or some alternate theory, such as the consumption capital asset pricing model or the arbitrage pricing theory.⁵⁹ This debate does not cast doubt on the fundamental soundness of the discounted cash flow valuation method or the other components of that method that were discussed above.

Finally, even within the limited debate about how one should calculate a risk premium, we have, in addition to popular theories, an enormous amount of historical data. We know, for example, that over the last seventy or so years, the average risk premium that the market has extracted for investments in corporate bonds has averaged about 2.0%.⁶⁰ Over the same time period the average risk premium on the S&P 500 has been 8.4% and on small corporations has been about 13.7%.⁶¹ Certainly

55. See Thompson, *supra* note 8, at 519-20 (discussing some of the defenders of the capital asset pricing model).

56. See GRIGHAM ET AL., *supra* note 16, at 178, 212.

57. See BREALEY & MEYERS, *supra* note 15, at 182-90.

58. *Id.* at 194. The authors immediately add, however, that the capital asset pricing model is "far from perfect. Actual returns are related to beta over the long run, but the relationship is not as strong as the CAPM predicts, and other factors seem to explain returns better since the mid-1960s." *Id.* And finally Brealey and Myers state that:

The capital asset pricing model captures these ideas [about risk and return] in a simple way. . . . But that doesn't mean that the capital asset pricing model is ultimate truth. [That theory] . . . has several unsatisfactory features Nobody knows whether [an alternative theory for measuring risk] . . . is eventually going to come out on top or whether there are other, better models of risk and return that have not yet seen the light of day."

Id. at 184. But, the authors add that "[i]t will be very hard to reject the CAPM beyond all reasonable doubt." *Id.* at 188.

59. Brealey and Myers, perhaps, best sum this up when they report that, while "[e]ach of these different models of risk and return has its fan club[,] . . . all financial economists agree on two basic ideas: (1) Investors require extra expected return for taking on risk, and (2) they appear to be concerned predominately with the risk that they cannot eliminate by diversification." *Id.* at 195. See also *id.* at 185-88.

60. *Id.* at 146.

61. *Id.*

these numbers provide at least “benchmarks” for the determination of risk premiums.⁶²

D. Summary Statements

The purpose for this section, as stated at the outset, is to provide a theoretical framework for the balance of the article. Also, however, this section is intended to provide evidence of the broad agreement among most financial economists today about most matters of present value.

II. THE CATEGORIES OF METHODOLOGIES

The data presented in Section III of this paper are organized around five valuation methodologies and one catch-all category.⁶³ Brief descriptions of these categories of valuation methodologies follow.

A. Discounted Cash Flow Value

This methodology is described in Section I of this paper. To repeat briefly, one calculates the discounted cash flow value of a company by estimating the cash flows of the company and discounting those cash flows by a factor that reflects both the time value of money (the riskless rate of return) and risk (the risk premium).⁶⁴

B. Asset Value

“Asset value” amounts to the market value of the net assets of the

62. Brealey and Myers refer to these numbers as “benchmarks for the opportunity cost of capital.” *Id.* at 166. They go on to explain: “If we are evaluating a safe project, we discount at the current risk-free rate of interest. If we are evaluating a project of average risk, we discount at the expected return on the average common stock . . .” *Id.*

63. Not surprisingly, categorizing the cases was difficult in some instances. In the first place, the categories are not always crisp. Perhaps this is best explained by reference to the comparative ratio methodology. *See infra* discussion accompanying notes 75-77. Of the five categories established in the article, the comparative ratio methodology is the softest around its edges. For example, if under the comparative ratio methodology, one uses a current price-earnings ratio of an actively traded comparable company as part of the valuation, the methodology begins to look like the discounted cash flow methodology. Also, to the extent that the comparative ratio methodology results in multiple values being rendered, some weighting of the factors is likely necessary, and the methodology begins to look like the weighted average methodology. *See infra* discussion accompanying notes 78-83, for a description of the weighted average methodology.

Generally, however, the cases fell easily into the categories, and thus the number of close calls was small. Especially in light of the depth of the data, the proportion of “softer” cases seems relatively non-distortive.

64. *See* BREALEY & MYERS, *supra* note 15, at 35.

company.⁶⁵ In this valuation method, therefore, the evaluator calculates the fair market value that the assets of the company would bring in the event of liquidation and subtracts from that figure the liabilities of the company.⁶⁶

A couple of points should be made in order to establish the distinct nature of this methodology. First, asset value is determined by the liquidation value of the assets and not by the going concern value of the assets as presently deployed by the company and its managers.⁶⁷ In other words, asset value is essentially an opportunity cost measure of the value of the company's assets and thus amounts to the most valuable alternate use of the assets.⁶⁸ It is possible, therefore, that the asset value of a company could exceed the company's going concern value.⁶⁹

The second point is that an asset value methodology does not involve applying any multiple or discount to the net liquidation value of the company's assets. Asset value is merely the amount that the company would bring, if all the assets were sold and all the debts were paid.⁷⁰ So, for example, if an evaluator were to propose to value a company at 1.3 times its net asset value or, what one sees more often, to value a company at 1.3 times its book value, those would not be categorized in this paper as an asset valuation.⁷¹

C. Deal Value

In this methodology, a company's value is established by reference to the price at which similar companies were acquired.⁷² So, for example, if Petroleum Company A were recently acquired at a price of 1.8 times its book value, Petroleum Company B might be valued at 1.8 times its book value. Or, if the acquisition price for Company A were fifteen times its most recently reported earnings, a claim may be made that Company B should be valued at fifteen times its most recent earnings.

The critical distinguishing aspect here is that deal value prices off the acquisition of a comparable company. Thus to the extent that the price of the comparable acquisition involved the acquiring company's paying for

65. See PRATT, *supra* note 20, at 254-56.

66. See, e.g., Bell v. Kirby Lumber Corp., 413 A.2d 137, 140 (Del. 1980).

67. *Id.*

68. See *id.*

69. See, e.g., *id.* at 145-47 (the court determined that the earnings value of the Kirby Lumber Company was \$120 per share but that the asset value of Kirby was \$456 per share).

70. See *id.*

71. These types of valuations may be part of a comparative ratio valuation. See *infra* discussion accompanying note 77.

72. See, e.g., PRATT, *supra* note 20, at 243-45.

the synergy created in that particular deal,⁷³ the application of the deal value methodology to the transaction under consideration impounds the value of that synergy into the valuation of the company under consideration.⁷⁴

D. Comparative Ratio Value

An evaluator using the comparative ratio valuation methodology bases its valuation on certain key ratios derived from comparable companies that are actively traded in the market and that are not being acquired.⁷⁵ Significant trading activity in the comparable stock is necessary to ensure that the pricing of the comparable stock is efficient and that data about the comparable stock is readily available.

The ratios from the comparable company are constructed using the market price of the comparable's stock over various financial data from the comparable company. These financial data may include: (a) total revenues, (b) book value, (c) earnings, (d) earnings before deducting certain expenses, such as interest and taxes (EBIT) or interest, taxes, depreciation and amortization (EBITDA).⁷⁶ For example, if the present trading price of a computer manufacturer, C Co., is two times its total revenues, then under this methodology one might claim that the fair value of another computer manufacturer, D Co., should be two times D Co.'s total revenues. Similarly, if the present trading price of C Co.'s stock is 1.5 times its book value, then one may consider D Co. to have a fair value of 1.5 times its (D Co.'s) book value. Using this methodology, one may wind up with more than one valuation. For example, one may wind up with valuations that are multiples of the company's total revenues, its book value, its EBIT, etc. In such cases, the evaluator is obliged either to blend the various values in some fashion or to select one of the values to predominate.⁷⁷

73. See, e.g., RONALD J. GILSON & BERNARD S. BLACK, *THE LAW AND FINANCE OF CORPORATE ACQUISITIONS* 300-04 (2d ed. 1995). Studies support the conclusion that a majority of the synergy generated in an acquisition often goes to the shareholders of the acquired company, especially when the sale occurs in a vigorous market for corporate control. *Id.* at 300-02.

74. PRATT, *supra* note 20, at 243.

75. See, e.g., PRATT, *supra* note 20, at 206.

76. See, e.g., PRATT, *supra* note 20, at 207-08; *Harris v. Rapid Am. Corp.*, No. CIV.A. 6462, 1990 WL 146488, at *9 (Del. Ch. Oct. 2, 1990).

77. See *Harris v. Rapid-Am. Corp.*, No. Civ. A. 6462, 1990 WL 146488, at *3-4 (Del. Ch. 1990), *aff'd in part and remanded in part*, 603 A.2d 796 (Del. 1992) (affirming use of comparative ratio valuation methodology, but remanding for consideration of other issues). In that case, the Chancery Court computed ratios from publicly traded companies market value of invested capital to the following factors: earnings before interest and taxes; earnings before depreciation, interest and taxes; revenues; and tangible book value of

E. Weighted Average Value

The old Delaware block method⁷⁸ is the most commonly used weighted average valuation technique. There, for example, the evaluator considers up to four separate factors of value and then arrives at a final valuation by weighting each of the factors.⁷⁹ The factors typically found in a Delaware block evaluation are: (1) asset value, (2) market value, (3) earnings value, and (4) dividend value.⁸⁰ The weights assigned to the factors vary from case to case,⁸¹ and, indeed, not all of the four factors are accorded weight in all cases. Dividend value, for example, is the particular element of value that is omitted from consideration most often.⁸²

The weighted average valuation category includes not only the Delaware block cases but also cases in which factors outside the traditional four factors of the Delaware block method are used. *Le Beau v. M.G. Bancorporation, Inc.* is an example.⁸³ In that case a party valued the company by computing a discounted cash flow value and a comparative ratio value and then blended these values into its final valuation estimate by weighting each factor at fifty percent.⁸⁴

F. Other Valuation Methods

A catch-all category is established for methodologies that do not fit into any of the five discrete categories described above.

invested capitals. *Id.* at *9-10. Each of the ratios was applied to comparable financial data from *Rapid-American*, and the results from the individual factors were weighted to arrive at the final valuation. *Id.* at *3-18.

78. Two somewhat older student works provide an excellent look at the ways courts applied the Delaware block method. See Note, *Valuation of Dissenters' Stock Under Appraisal Statutes*, 79 HARV. L. REV. 1453, 1467 (1966); J. Steven Rogers, Note, 30 OKLA. L. REV. 629, 641-42 (1977).

79. Note, *Valuation of Dissenters' Stock under Appraisal Statutes*, 79 HARV. L. REV. 1453, 1457-71 (1966).

80. *Id.*

81. VICTOR BRUDNEY & WILLIAM W. BRATTON, BRUDNEY AND CHIRELSTEIN'S CORPORATE FINANCE CASES AND MATERIALS 708-09 (4th ed. 1993). The authors build on a prior student note, by J. Steven Rogers, *The Dissenting Shareholder's Appraisal Remedy*, to provide an evaluation of the weights assigned by courts in utilizing the Delaware block approach. Rogers, *supra* note 78, at 641-42. Out of the eighteen decisions involved in their survey, the average weight accorded to asset value was 36.0%. The average weight accorded market value was 23.1% and earnings value was 39.0%. *Id.*

82. See, BRUDNEY & BRATTON, *supra* note 81, at 708-09. Out of the eighteen cases utilizing the Delaware block approach reported by Brudney & Bratton, dividend value was accorded positive weight in only two of the cases. *Id.* at 709.

83. No. Civ. A. 13414, 1998 WL 44993, at *2 (Del. Ch. Jan. 29, 1998).

84. *Id.* at *4.

III. COURT DECISIONS

This section presents data regarding the valuation methodologies used by courts in acquisition cases. As stated at the outset of this piece, the population of cases from which the data is extracted is made up of seventy-six acquisition cases from all jurisdictions decided since *Weinberger* in which the fair price or the fair value of the acquisition was challenged by a party and the court was, as a result, required to determine the value of the corporation that was the subject of the transaction.

Table 1 shows the data as a whole and thus includes cases from all jurisdictions and all time periods. Table 2 through Table 9 break the data into sub-populations of cases to show differences between Delaware and non-Delaware cases and between cases decided within the first eight years after *Weinberger* and cases decided thereafter.

Table 10 through Table 18 present data limited to cases in which courts used a discounted cash flow methodology as a basis for their valuations and show how those courts determined both the cash flows and the discount rates they used.⁸⁵

A. Methodologies Utilized by Courts: All Jurisdictions; All Periods

Table 1 reflects the valuation methodologies used by courts in the entire population of cases.

85. See Appendix

**TABLE 1: METHODOLOGIES ACCEPTED BY COURTS:
ALL JURISDICTIONS; ALL PERIODS
SINCE *WEINBERGER*⁸⁶**

	DISCOUNTED CASH FLOW	ASSET VALUE	DEAL VALUE	COMPARATIVE RATIO	WEIGHTED AVERAGE	OTHER
PERCENTAGE ¹	31%	20%	3%	7%	30%	10%
FRACTION	24/77	15/77	2/77	5/77	23/77	8/77

¹Rounding causes total percentage to be more than 100%.

In considering the Table, one may first be struck by the dispersion of outcomes. No single methodology was utilized by the courts in a majority of the cases or, indeed, even in close to a majority of the cases. Each of the three most popular valuation methodologies – discounted cash flow method, asset value method and weighted average method – was utilized by courts in roughly between twenty percent and thirty percent of the cases. The utilization rate drops off precipitously after that, but considered together, the other three categories account for a total of approximately twenty percent of the decisions. Courts, therefore, seem to take seriously the flexibility that they typically have in selecting from various valuation methodologies.

Focusing next on the particular utilization rates for the highest use methodologies, one finds, first of all, that the discounted cash flow methodology was used by the courts in slightly less than one-third of all the cases. This number may be surprisingly low in light of the broad acceptance of the discounted cash flow methodology among financial

86. In Table 1, the useable number of cases is seventy-one. See Appendix. In some of those cases, however, courts employed more than one valuation methodology. An example of this is the case of *Robbins and Co. v. A.C. Israel Enter., Inc.*, where the court valued three different components of the company by three different methodologies. No. C.A. 7919, 1985 WL 149627, at *4-5 (Del. Ch. Oct. 2, 1985) (market value methodology used to value common stock held as investment); *id.* at *7-8 (discounted cash flow methodology used to value debentures held as investment); *id.* at *8-9 (asset value used to place an overall value on the company). Each of the three chosen methodologies is recorded separately in the Table. Also in one case, *Cavalier Oil Corp. v. Harnett*, the court evaluated two companies separately, and the methodologies in that single case are recorded separately as well. No. CIV.A. 7959, 1988 WL 15816, at *10-31 (Del. Ch. Feb. 22, 1988). Thus, in Table 1, although the Table is based on seventy-one cases, courts made a total of seventy-seven choices respecting valuation methods. Choices by courts are considered a better reflection of actual use than number of cases, and the numbers in Tables 1-9 are so constructed.

economists.⁸⁷ One might have imagined that the discounted cash flow method would have made more of an inroad in the nearly twenty years since *Weinberger* turned away from the exclusive use of the Delaware block approach and thus seemed to open the door for the absorption of sound financial theory into the law of acquisitions.

Table 1 also demonstrates that the weighted average methodology has had a significant life after *Weinberger*, being relied on by courts in thirty percent of the all cases. Once again, one may be surprised at the reluctance of courts to dispatch this unsound methodology.⁸⁸

Finally, one may not have expected to find courts in twenty-percent of all cases using an asset value methodology. Courts uniformly, and properly so,⁸⁹ reject liquidation value in favor of going concern value as the proper measure of fair value or fair price,⁹⁰ and it is difficult to square this articulated aversion with the fact that courts utilized an asset based valuation in one-fifth of the cases in the population.⁹¹

In summary, if one is convinced that the discounted cash flow methodology best reflects modern finance theory, the outcomes from these cases are not encouraging. Courts in less than one-third of their opinions used that favored methodology, while continuing to rely to a significant degree on the weighted average methodology and the asset value methodology. Indeed, these latter two problematic valuation methodologies considered together were accepted by courts in one-half of the cases from the population.⁹²

87. See *supra* notes 16-18 and accompanying text.

88. See *infra* notes 137-38 and accompanying text.

89. See *infra* notes 134-36 and accompanying text.

90. See, e.g., *CEDE & Co. v. Technicolor, Inc.*, 684 A.2d 289, 297 (Del. 1996) (Liquidation value not appropriate as sole measure of fair value); *In re Shell Oil Co.*, 607 A.2d 1213, 1219 (Del. 1992) (same); *Rapid-Am. Corp. v. Harris*, 603 A.2d 796, 802 (Del. 1992) (same). In Delaware, this rule predated *Weinberger*. See, e.g., *Tri-Continental Corp.*, 74 A.2d at 72.

91. See Appendix.

92. See Appendix.

The low acceptance rate for a deal value methodology may be related to the fact that most of the cases in the population were appraisal cases. The popular rhetoric is that appraisal rights do not entitle dissenting shareholders to share in the synergy generated by the transaction. See Campbell, *supra* note 8, at 122-27. Because deal value prices off acquisitions of entire companies, deal value would, by definition, contain synergy. See, e.g., Bernard Black & Joseph Grundfest, *Shareholder Gains from Takeovers and Restructuring Between 1981 and 1986*, J. APPLIED CORP. FIN. 5 (1988) ("There is no shortage of research demonstrating takeover premiums averaging 30-50%."). At least one case provides support for the idea that the synergy in deal value pricing makes deal value an inappropriate method for establishing appraisal value. See *Kleinwort Benson Ltd. v. Silgan Corp.*, No. CIV.A. 11107, 1995 WL 376911, at *3 (Del. Ch. Jun. 15, 1995) (rejecting deal value in appraisal proceedings "because it reflects value arising from the accomplishment or expectation of the

*B. Methodologies Utilized by Courts: All Jurisdictions;
Separated by Periods*

Table 2 and Table 3 separate the data into earlier and later cases. Table 2 shows the valuation methodologies accepted by courts in all jurisdictions from the date of the *Weinberger* decision until January 1, 1991, and Table 3 shows the valuation methods accepted by courts in decisions after January 1, 1991.

There is nothing remarkable about the eight year time period in Table 2. Instead, it was chosen as a rough approximation of a period of time that might allow the *Weinberger* decision an opportunity to be absorbed into the judicial marketplace of ideas. The point here is to see whether or not, as time passes, courts move to valuation methods more consistent with modern finance theory.

**TABLE 2: METHODOLOGIES ACCEPTED BY COURTS:
CASES FROM ALL JURISDICTIONS DECIDED
BETWEEN *WEINBERGER* AND JANUARY 1, 1991⁹³**

	DISCOUNTED CASH FLOW	ASSET VALUE	DEAL VALUE	COMPARATIVE RATIO	WEIGHTED AVERAGE	OTHER
PERCENTAGE	24%	29%	0%	3%	29%	15%
FRACTION	8/34	10/34	0/34	1/34	10/34	5/34

merger").

The Table also shows that the comparative ratio analysis did not fare well with courts. In fact, three of the entries in the author's population of comparative ratio cases were from the various court opinions in a single case. See generally *Harris v. Rapid-Am. Corp.*, No. CIV.A. 6462, 1990 WL 146488 (Del. Ch. Oct. 2, 1990), *aff'd in part and rev'd in part*, 603 A.2d 796 (Del. Jan. 23, 1992), *remanded*, 1992 WL 69614 (Del. Ch. Apr. 6, 1992). If those three opinions were counted only once, instead of three times, the acceptance rate for the comparative ratio analysis would be reduced to an even more modest seven percent.

93. See *supra* note 86 and accompanying text.

**TABLE 3: METHODOLOGIES ACCEPTED BY COURTS:
CASES FROM ALL JURISDICTIONS DECIDED
AFTER JANUARY 1, 1991⁹⁴**

	DISCOUNTED CASH FLOW	ASSET VALUE	DEAL VALUE	COMPARATIVE RATIO	WEIGHTED AVERAGE	OTHER
PERCENTAGE	37%	12%	5%	9%	30%	7%
FRACTION	16/43	5/43	2/43	4/43	13/43	3/43

First, comparing Table 2 to Table 3, one finds in the later period an increased reliance on the discounted cash flow method and a decreased reliance on asset value, and both of these changes suggest positive movement. On the negative side, however, the weighted average utilization rate remained essentially unchanged in the two periods. The data considered as a whole, therefore, suggest modest progress toward the use of better valuation methodologies.

Focusing on Table 3 by itself as a way to evaluate how courts have behaved in more recent times, the data suggest that we still have a long way to go to come to a proper use of modern finance theory. Table 3 shows that during the more recent period only about one in three cases (thirty-seven percent) was decided using the discounted cash flow method, while thirty percent of the cases were decided under the weighted average method and a total of forty-two percent of the cases were decided under the weighted average method and the asset valuation method considered together.

Viewed broadly, therefore, the data in Tables 2 and 3 suggest modest progress toward an appropriate use of modern finance theory and a situation in the latter period that is far from ideal.

*C. Methodologies Utilized by Courts: In Delaware
and Non-Delaware Cases*

Because of the significance of Delaware to corporations and corporate law, the data are now divided into Delaware cases and non-Delaware cases.

Of the seventy-six useable decisions in the population of cases forty-one (fifty-four percent) are from Delaware state courts, and thirty-five (forty-six percent) are from non-Delaware courts. Thus, while these numbers do indicate the significance of Delaware, they also indicate that

94. See *supra* note 86 and accompanying text.

one should resist any urge to write off other jurisdictions as being of no material consequence.

Table 4 shows the methodologies utilized by Delaware courts in cases decided since *Weinberger*. Table 5 shows the methodologies utilized by non-Delaware courts in cases decided since *Weinberger*.

**TABLE 4: DELAWARE CASES: METHODOLOGIES
ACCEPTED BY DELAWARE COURTS IN ALL
PERIODS AFTER *WEINBERGER*⁹⁵**

	DISCOUNTED CASH FLOW	ASSET VALUE	DEAL VALUE	COMPARATIVE RATIO	WEIGHTED AVERAGE	OTHER
PERCENTAGE ¹	49%	19%	5%	7%	14%	7%
FRACTION ²	21/43	8/43	2/43	3/43	6/43	3/43

¹Rounding causes total percentage to be more than 100%

²One decision is counted twice because it involved two separate valuation opinions on two separate corporations.

**TABLE 5: NON-DELAWARE CASES: METHODOLOGIES
ACCEPTED BY NON-DELAWARE COURTS IN
ALL PERIODS AFTER *WEINBERGER*⁹⁶**

	DISCOUNTED CASH FLOW	ASSET VALUE	DEAL VALUE	COMPARATIVE RATIO	WEIGHTED AVERAGE	OTHER
PERCENTAGE ¹	9%	21%	0%	6%	50%	15%
FRACTION	3/34	7/34	0/34	2/34	17/34	5/34

¹Rounding causes total percentage to be more than 100%.

Comparing Table 4 and Table 5, the data suggest, not surprisingly, that Delaware courts have made better use of modern finance theory than have non-Delaware courts. This is shown, for example, by Delaware's relatively higher use of the discounted cash flow methodology and its

95. See *supra* note 86 and accompanying text.

96. See *supra* note 86 and accompanying text.

relative lower use of the weighted average methodology. Interestingly, the asset value methodology was the second most popular both in and outside of Delaware and was used in approximately the same percentage of cases in both.

The differences in the utilization rates in the two Tables also suggest that other jurisdictions are not paying much attention to what is going on in Delaware. Any unique importance of the Delaware cases, therefore, seems more the result of the number of large corporations incorporated in Delaware and less the result of the influence of Delaware's jurisprudence on her sister states.

D. Methodologies Utilized by Courts: In Earlier Cases and In More Recent Cases

The Delaware and non-Delaware sub-populations are now re-divided by time periods. The purposes here are to show whether courts in each of the two sub-populations have, over time, changed the methodologies they use to determine present value and also to show the methodologies that courts have used in their more recent decisions.

These re-divided sub-populations get somewhat thin and must be evaluated accordingly.

1. Delaware Cases

Tables 6 and 7 report the Delaware cases. Table 6 indicates the valuation methodologies accepted by Delaware courts in the period between the *Weinberger* decision and January 1, 1991. Table 7 indicates the valuation methodologies accepted by Delaware courts in cases decided thereafter.

**TABLE 6: DELAWARE CASES: METHODOLOGIES
ACCEPTED BY DELAWARE COURTS IN CASES
DECIDED BETWEEN *WEINBERGER* AND
JANUARY 1, 1991⁹⁷**

	DISCOUNTED CASH FLOW	ASSET VALUE	DEAL VALUE	COMPARATIVE RATIO	WEIGHTED AVERAGE	OTHER
PERCENTAGE	44%	31%	0%	6%	13%	6%
FRACTION	7/16	5/16	0/16	1/16	2/16	1/16

**TABLE 7: DELAWARE CASES: METHODOLOGIES
ACCEPTED BY DELAWARE COURTS IN CASES
DECIDED AFTER JANUARY 1, 1991⁹⁸**

	DISCOUNTED CASH FLOW	ASSET VALUE	DEAL VALUE	COMPARATIVE RATIO	WEIGHTED AVERAGE	OTHER
PERCENTAGE ¹	52%	11%	7%	7%	15%	7%
FRACTION	14/27	3/27	2/27	2/27	4/27	2/27

¹Rounding causes total percentage to be less than 100%.

Comparing Table 6 to Table 7, the data suggest modest gains in the better selection of valuation methodologies. Thus, Delaware courts in the most recent period modestly increased their use of the discounted cash flow methodology and decreased their reliance on the asset value method. Their use of the weighted average method of valuation essentially remained unchanged between the two periods.

Table 7 considered by itself may be the most interesting to many, because it reports the more recent cases from the most important jurisdiction. The Table indicates that during this period Delaware courts relied on the discounted cash flow method in approximately one-half of their cases. While this data may at first seem encouraging, and certainly it

97. See *supra* note 86 and accompanying text.

98. See *supra* note 86 and accompanying text.

is better than the utilization rate for cases from all periods and all jurisdictions, as reported in Table 1, one might be less than fully satisfied with a situation in which one-half of the decisions were based on methodologies *other than* discounted cash flows and approximately one-fourth of all the cases were decided under either the asset value method or the weighted average method.

2. Non-Delaware Cases

Table 8 shows the valuation methodologies accepted by non-Delaware courts in cases decided between the *Weinberger* decision and January 1, 1991. Table 9 shows the valuation methodologies accepted by non-Delaware courts in cases decided thereafter.

**TABLE 8: NON-DELAWARE CASES: METHODOLOGIES
ACCEPTED BY NON-DELAWARE COURTS IN
CASES DECIDED BETWEEN *WEINBERGER* AND
JANUARY 1, 1991⁹⁹**

	DISCOUNTED CASH FLOW	ASSET VALUE	DEAL VALUE	COMPARATIVE RATIO	WEIGHTED AVERAGE	OTHER
PERCENTAGE	6%	28%	0%	0%	44%	22%
FRACTION	1/18	5/18	0/18	0/18	8/18	4/18

**TABLE 9: NON-DELAWARE CASES: METHODOLOGIES
ACCEPTED BY NON-DELAWARE COURTS IN
CASES DECIDED AFTER JANUARY 1, 1991¹⁰⁰**

	DISCOUNTED CASH FLOW	ASSET VALUE	DEAL VALUE	COMPARATIVE RATIO	WEIGHTED AVERAGE	OTHER
PERCENTAGE ¹	13%	13%	0%	13%	56%	6%
FRACTION	2/16	2/16	0/16	2/16	9/16	1/16

99. See *supra* note 86 and accompanying text.

100. See *supra* note 86 and accompanying text.

¹Rounding causes total percentage to be more than 100%.

Comparing Table 8 and Table 9, and even allowing for the thinness of the data, one finds little basis for material encouragement. On the positive side are the modest increase in the utilization of the discounted cash flow method and the modest decrease in the use of the asset value and the weighted average considered together. Any encouragement from these factors, however, is more than offset by the increased use of the weighted average method during the most recent period.

Now focusing on Table 9 by itself, one finds non-Delaware courts in the more recent period relying on the discounted cash flow method in only about one in ten cases, while utilizing the weighted average method in slightly over one-half of its decisions. These data suggest the extent to which non-Delaware courts under utilize modern finance theory in their acquisition cases.

E. Methodologies Utilized by Courts: Matters Involving the Discounted Cash Flow Analysis

This section offers data respecting certain theoretical issues that are critical to the discounted cash flow methodology.¹⁰¹ The discussion and presentation of data are organized around the two principal components of the discounted cash flow analysis – cash flows and the discount rate.

1. Cash Flows

a. Projected vs. Historical

As previously discussed, financial economists compute present value by reference to future cash flows and not past cash flows.¹⁰² One might anticipate, therefore, that this broadly agreed upon, simple notion would find its way into cases, especially in light of the fact that in the *Weinberger* case Delaware abandoned the mandatory use of historical earnings in its present value calculations.¹⁰³

101. See Appendix. The population of cases on which this section is based includes cases in which the courts have accepted the discounted cash flow method and cases in which courts have used the discounted cash flow method as part of another valuation methodology, such as, for example, cases in which the earnings value component of the weighted average methodology is determined by using the discounted cash flow methodology.

102. See *supra* the discussion accompanying notes 19 and 20.

103. Prior to *Weinberger*, Delaware courts were required to use historical earnings in valuation computations. See, e.g., *Application of Delaware Racing*, 213 A.2d 203, 212 (Del. 1965) (citing *Cottrell v. Paweatuck Co.* 128 A.2d 225 "Delaware law requires that earnings value be determined on the basis of historical earnings rather than on the basis of

The empirical data, as reflected in Table 10, support the conclusion that courts in most, but not all, cases rely on projected cash flows as the basis for valuation under the discounted cash flow method.

**TABLE 10: PROJECTED OR HISTORICAL CASH FLOWS:
ALL JURISDICTIONS; ALL PERIODS SINCE
WEINBERGER**

	PROJECTED CASH FLOWS	HISTORICAL CASH FLOWS
PERCENTAGE	70%	30%
FRACTION	23/33	10/33

b. Projection Period: Perpetual and Its Proxies

All future cash flows, no matter how distant, have some present value. The timing of those cash flows, however, determines the amount of their present value. The sooner the cash flows are recognized, the higher their present value.¹⁰⁴ Courts utilizing projected cash flows as a basis for valuation are required, therefore, to make judgments or indulge assumptions about the duration and timing of future cash flows.

Regarding the duration of the projected cash flows, in nearly all cases courts with little discussion appear to assume the equivalent of a perpetual stream of cash flows for the company. Thus, if one looks at all twenty of the useable cases reported in Table 11, for example, one finds that all of the decisions were based essentially on assumptions of a perpetual stream of earnings.¹⁰⁵

prospective earnings.”). *Id.* *Weinberger* freed courts from this mandatory rule. *Weinberger*, 457 A.2d at 713 (courts are free to use “any techniques or methods [of valuation] which are generally considered acceptable in the financial community . . .”). *Id.* Even before *Weinberger*, however, Delaware courts sometimes appeared to reject this wrong-headed rule and to use projected earnings as a part of their present value analysis. Thus, in *David J. Greene Co. v. Dunhill Inc.*, for example, after recognizing that “[i]t is settled law in Delaware that earnings value is to be determined on the basis of past and not on prospective earnings,” the Delaware Chancery Court went on to add that it was not “obliged to blindly use past earnings without reference to other factors of record.” 249 A.2d 427, 433 (Del. Ch. 1968).

104. See *supra* note 31 and accompanying text.

105. All the cases reported in Table 11 essentially use an assumption of a perpetual cash flow. The case under the “Perpetual Cash Flows” heading is obviously using this

Courts do, however, employ different conventions or proxies to deal with the difficulties inherent in any estimate into perpetuity. Thus Table 11 reports that in most cases courts estimate perpetual cash flows by projecting annual cash flows for a finite period and adding a terminal value equal to the anticipated value of the company at the end of the finite period. The terminal value, therefore, becomes a proxy for the value of the annual cash flows starting at the end of the finite period and extending into perpetuity.

TABLE 11: CALCULATION OF CASH FLOWS: ALL JURISDICTIONS; ALL PERIODS SINCE WEINBERGER

	PERPETUAL CASH FLOWS	FINITE CASH FLOWS, PLUS TERMINAL VALUE	FINITE CASH FLOWS, WITHOUT TERMINAL VALUE
PERCENTAGE	20%	75%	5%
FRACTION	4/20	15/20	1/20

Looking at cases in which courts project cash flows by use of a finite period plus a terminal value, Table 12 shows that courts use differing finite periods, but five years is the length of time most often used by courts.¹⁰⁶

assumption. The cases under "Finite Cash Flows, Plus Terminal Value" include in the "Terminal Value" the present value of all discounted cash flow beyond the final year in the base period. Finally, in the one case from Table 11 in which the court used a "Finite Cash Flows, without Terminal Value", which case was *TV58 Ltd. Partnership v. Weigel Broad. Co.*, the Court adopted the work of an expert, Cheen, who projected earnings for a finite period and did not add any terminal value. No. CIV.A. 10798, 1993 WL 285850, at *7 (Del. Ch. July 22, 1993). But, the court pointed out that Cheen "employs a lower discount rate than that used in traditional discounted cash flow model, primarily because it does not consider the factor of residual value." *Id.* Thus, the court essentially gave value to the post-base period cash flows by lowering the discount rate.

106. Brealey & Myers comment that "valuation horizons are often chosen arbitrarily." BREALEY & MYERS, *supra* note 15, at 76. They then use six years in one of their examples. *Id.*

**TABLE 12: NUMBER OF YEARS IN FINITE PROJECTIONS:
ALL JURISDICTIONS; ALL PERIODS SINCE
WEINBERGER**

	3 Years	4 Years	5 Years	7 Years	13 Years
PERCENTAGE ¹	7%	7%	67%	13%	7%
FRACTION	1/15	1/15	10/15	2/15	1/15

¹Rounding causes total percentage to be more than 100%.

Courts also often differ in the way they establish the terminal value of a company. Nonetheless, as Table 13 indicates, courts in most of the cases determine terminal value by capitalizing the projected cash flow in the last year of the base period.¹⁰⁷

**TABLE 13: TERMINAL VALUE CALCULATIONS: ALL
JURISDICTIONS; ALL PERIODS SINCE
WEINBERGER**

	DISCOUNTING ALL PROJECTED POST-BASE PERIOD CASH FLOWS	DISCOUNTING BASED ON HISTORIC, PRE- MERGER CASH FLOWS	CAPITALIZING PROJECTED CASH FLOWS ANTICIPATED IN THE LAST YEAR OF BASE PERIOD
PERCENTAGE ¹	27%	9%	63%
FRACTION	3/11	1/11	7/11

¹Rounding causes total percentage to be less than 100%.

Theoretically, nothing seems wrong with calculating discounted cash

107. Thus, for instance, in *Cavalier Oil Corp. v. Harnett*, the court established the terminal value of Epic Realty Services, Inc. by applying a "multiple of 12 times 1989 projected earnings." 1988 WL 15816, at *29. That terminal value was then discounted to the present. *Id.*

flow value by using projected earnings for a finite period plus a terminal value, assuming this technique is properly understood and consistently applied.¹⁰⁸ The key theoretical point here is that the terminal value should equal the discounted value of the company's cash flows beginning at the end of the finite period.¹⁰⁹ It seems unobjectionable to establish that terminal value by some proxy value, such as, for example, the value that could be garnered for the company at the end of the finite period if all the stock in the company were sold in a public offering, so long as the evaluator understands that the price the public would pay for the company in that circumstance would amount to the present value of the company's anticipated cash flows beginning at the end of the finite period. It may be, as Brealey and Myers suggest, that this is a practical way to establish the present value of the later years' cash flows.¹¹⁰

There does seem, however, to be an increased risk of confusion when courts use such indirection to calculate cash flows. To use a finite number of years plus a terminal value approach necessarily involves the courts in a number of decisions that can get confusing. Questions arise, such as the number of years in the finite stream and the calculation methodology for terminal value. The more direct approach would require an estimate of annual revenues for as long as one can foresee. Admittedly, when one gets beyond a certain period, that becomes a very difficult prediction. Nonetheless, it is hard to see how approaching the matter through indirection improves the quality of the prediction.

c. Components of Cash Flows

In determining the present value of common stock in acquisition cases, courts using a discounted cash flow methodology often include in

108. Brealey and Myers seem to raise no significant objections to this method. BREALEY & MYERS, *supra* note 15, at 75-76.

109. Brealey and Myers state that it is "not practical to forecast free cash flow year by year into infinity." *Id.* at 76. However, the present value of the company must include *all* of the company's future cash flows, no matter how remote they may be. See discussion *supra* note 16 and accompanying text. Courts have thus used terminal value measures as an acceptable substitute for an ad infinitum year by year analysis. For instance, in *Cavalier Oil Corp. v. Harnett*, the court employed the use of terminal value in placing a value on a company's future cash flows, stating that the terminal value concept "is intended to represent the future value of the corporation at the end of a fixed projection period once the corporation's future cash flows have stabilized." 1988 WL 15816, at *20.

110. Brealey and Myers state that "the value of a business is usually computed as the discounted value of free cash flows out to a valuation horizon (H), plus the forecasted value of the business at the horizon, also discounted back to present value." BREALEY & MYERS, *supra* note 15, at 75. The authors explain this practical concession as necessary because "it's not practical to forecast free cash flow year by year to infinity." *Id.* at 76.

their cash flows amounts beyond dividends or even beyond GAAP earnings.¹¹¹ Table 14 reports on this matter, indicating that in most cases courts have included in cash flows certain expenses that under GAAP are required to be deducted from net profits.

Referring to Table 14, in just 14% of the useable cases did the court use only dividends as its cash flows, and in just 28% of those cases did the court use only dividends or GAAP earnings. This means that courts in 72% of the cases from that population determined present value by discounting a portion of the revenue stream that included some normal GAAP expenses.

As the Table indicates, the most usual of these GAAP-deductible expenses included in cash flows were non-cash expenses, such as amortization or depreciation (36%). But in what may seem a surprisingly high percentage of cases, cash flows also included certain cash expenses deductible under GAAP, specifically interest charges (57%) and taxes (29%). All of these require comment.

111. See *infra* Table 14.

TABLE 14: COMPONENTS OF "CASH FLOWS": ALL JURISDICTIONS; ALL PERIODS SINCE WEINBERGER¹¹²

	DIVIDEND ONLY	ACCOUNTANT'S EARNINGS ONLY	CASH FLOWS INCLUDE NON-CASH EXPENSES	CASH FLOWS INCLUDE INTEREST CHARGES	CASH FLOWS INCLUDE TAXES	CASH FLOWS INCLUDE EXCESS WORKING CAPITAL
PERCENTAGE ⁽¹⁾	14%	14%	36%	57%	29%	14%
FRACTION ⁽¹⁾	2/14	2/14	5/14	8/14	4/14	2/14

⁽¹⁾Represents the percentage or fraction of all cases in which cash flows included the designated item. Percentages do not add up to 100%, and fractions do not add to 1, because, for example, the cash flow used by a court may include one or more of the items: "Non-Cash Expenses," "Interest Charges" or "Taxes."

The matter of including non-cash expenses in cash flows is the easiest to understand and, indeed, is entirely appropriate. As described earlier,¹¹³ scholars have long recognized that basing present value on accountant's earnings may be distortive in cases where the company has large, irregularly occurring non-cash charges, such as depreciation.¹¹⁴ Perhaps the real surprise here is that such non-cash charges were added back into cash flows in only 36% of the cases.

Including interest charges in the cash flows that courts discount,

112. In Table 14, the column "Cash Flows Include Excess Working Capital" is interesting but not directly implicated by the large points of this paper.

In situations in which courts have concluded that the company has more working capital than it needs to run its operations, the courts may assume that the excess working capital will be paid out to the shareholders. *See, e.g., Neal v. Alabama By-Products Corp.*, No. CIV.A. 8282, 1990 WL 109243, *15-16, *20-21. In that case, it is theoretically sound to consider the amount to be paid to shareholders as a one time cash flow, *provided* that the other projected earnings do not include any earnings capacity that could be generated by the paid out excess working capital.

The legitimacy of the assumption that the excess working capital will be paid out is itself a complex matter that is beyond the scope of this paper. *See generally* Campbell, *supra* note 8 (articulating an economic and moral theory for the appropriateness of assumptions underlying corporate valuations).

113. *See supra* notes 21-25.

114. For a good explanation of this, see Blum & Katz, *supra* note 25, at 236-42. *See also* BREALEY & MYERS, *supra* note 15, at 90 ("Cash flows and accounting income are often very different . . . the accountant's decisions have nothing to do with . . . cash flow . . .").

however, appears at first blush to be much more problematic. Interest charges are real cash payments that must be deducted from the revenue stream before shareholders are entitled to participate in the cash flows.¹¹⁵

To value shareholders' ownership by discounting pre-interest cash flows, therefore, seems to over-value shareholders' claims.¹¹⁶

The logic of determining the value of shareholders' ownership by reference to pre-interest cash flows depends on subtracting the value of debt instruments later in the calculations, before the court finally arrives at the value of shareholders' claims.¹¹⁷ So, if one discounts pre-interest cash flows, one arrives at a value for both the creditors' and the equity owners' interests in the company. One must, therefore, in order to arrive at the value of the equity owners' ownership interests, subtract out of the value of the company's outstanding debt. What is left at that point is value that belongs to shareholders.¹¹⁸

Finally, arriving at the value of a company to its shareholders by discounting pre-tax projected cash flows seems troublesome for the reason that shareholders have no claim on amounts used to pay taxes.¹¹⁹ In at least some of the cases in the population, however, the particular entity was a non-tax paying entity.¹²⁰ In those cases, basing value on pre-tax earnings makes sense.

2. Discount Factor

Table 15 shows the way courts from all jurisdictions have constructed the discount factors that they have applied to the entity's cash flows.

115. See *supra* Section I.B.4.

116. This implicates the point from Section I.B.4. of the text, which is that the value of an interest in a company is determined by the value of the portion of the cash flows against which the interest holder has a claim. See *supra* Section I.B.4.

117. See discussion *supra* Section I.B.4.

118. The propriety of the use of pre-interest cash flows is tied to the use of the weighted average cost of capital as a method for determining the discount rate. See *supra* text accompanying notes 45-47. Cases in which the court discounted the pre-interest cash flows and later backed out the value of the debt instruments include *CEDE & Co. v. Technicolor, Inc.*, 1990 WL 161084, at *27; *In Re Radiology Assoc.*, 611 A.2d 485 (Del. Ch. 1991); *Gilbert v. MPM Enter.*, 709 A.2d 663 (Del. Ch. 1997).

119. See *supra* note 29 and accompanying text.

120. *In re Radiology Assoc.*, 611 A.2d at 492; *McLane Gas Co. v. Enserch Corp.*, 1992 WL 368614, at *1 (Del. Ch. Dec. 11, 1992), *aff'd*, 633 A.2d 369 (Del. Ch. 1993).

TABLE 15: DISCOUNT FACTOR: ALL JURISDICTIONS

	PRICE EARNINGS RATIO	CAPITAL ASSET PRICING MODEL ⁽¹⁾	WEIGHTED AVERAGE COST OF CAPITAL ⁽¹⁾	CAPITAL ASSET PRICING MODEL OR WEIGHTED AVERAGE COST OF CAPITAL ⁽²⁾
PERCENTAGE	57%	14%	29%	43%
FRACTION	16/28	4/28	8/28	12/28

⁽¹⁾In all cases recorded under the "Weighted Average Cost of Capital" column, courts used the capital asset pricing model to establish the cost of equity. These cases are reported in the "Weighted Average Cost of Capital" column and are not included in the "Capital Asset Pricing Model" column.

⁽²⁾Because the capital asset pricing model is used to compute the cost of equity capital in the weighted average cost of capital method, the combined use of the two methods is reported in this column.

In Table 15, one finds that courts in 57% of the cases used price-earnings ratios from comparable companies as a basis for determining the applicable discount rate.¹²¹ Separately, the capital asset pricing model and the weighted average cost of capital were considerably less popular than the price-earnings ratio method, with the capital asset pricing model by itself being used by courts in 14% of the relevant cases and the weighted average cost of capital being utilized in 29% of the relevant cases.

Combining cases using the capital asset pricing model with cases using the weighted average cost of capital, however, one finds that the sum of those two methods amounts to 43%, which approaches the percentage of cases in which courts utilized price-earnings ratios to construct discount

121. In constructing a discount rate based on price-earnings ratios, courts may select a group of companies comparable to the company that is the subject of the valuation and use the price-earnings ratios of the comparable companies to establish the appropriate discount rate for the company being valued. *Charlip v. Lear Siegler, Inc.*, No. 5178, 1984 WL 8248, at *3-4 (Del. Ch. Nov. 27, 1984).

Charlip is an example of a court relying on price-earnings ratios from comparative companies as a basis for determining its discount rates. In that case, the petitioner offered and the court accepted a multiplier derived from "a weighted average price/earnings ratio for . . . eleven comparable companies." *Id.* at *172. The logic for using price-earnings ratios from comparable companies as a way to value the company in question can be explained easily. If Alpha Co. is similar in all regards to Beta Co., including, therefore, similar as to volatility of its earnings, and Alpha sells in the market at ten times its earnings (or a 10% discount rate), it is logical that in the assumedly efficient market Beta will sell at ten times its earnings (or a 10% discount rate).

rates. Combining cases using the capital asset pricing model and the weighted average cost of capital method makes sense, because courts in all weighted average cost of capital cases in the data used the capital asset pricing model to determine the cost of equity.

One sees, therefore, that the discount methodologies utilized by courts are to an overwhelming degree rooted either in price-earnings ratios from comparable companies or the capital asset pricing model. Omitted from the Table and its population of cases, however, are a number of cases in which the courts fail to explain the discount rate or its underlying methodology adequately or make an arbitrary or unprincipled selection of a particular discount rate. An example of the latter situation is *Cavalier Oil Corp. v. Harnett*, in which the Delaware Chancery Court, without apparent principle or analysis, selected a discount rate of 20%.¹²²

Tables 16 and 17 separate the population of discounted cash flow cases into Delaware and non-Delaware cases. Once again, the populations get thinner, and one must account for this in interpreting the data. Nonetheless, the data are revealing.

TABLE 16: DISCOUNT FACTOR: DELAWARE CASES

	PRICE EARNINGS RATIO	CAPITAL ASSET PRICING MODEL ⁽¹⁾	WEIGHTED AVERAGE COST OF CAPITAL ⁽¹⁾	CAPITAL ASSET PRICING MODEL OR WEIGHTED AVERAGE COST OF CAPITAL ⁽²⁾
PERCENTAGE ¹	47%	16%	37%	53%
FRACTION	9/19	3/19	7/19	10/19

⁽¹⁾In all cases recorded under the "Weighted Average Cost of Capital" column, courts used the capital asset pricing model to establish the cost of equity. These cases are reported in the "Weighted Average Cost of Capital" column and are not included in the "Capital Asset Pricing Model" column.

⁽²⁾Because the capital asset pricing model is used to compute the cost of equity capital in the weighted average cost of capital method, the combined use of the two methods is reported in this column.

122. 1988 WL 15816, at *19. To make matters worse, the court referred to the selection of a discount rate as "an exercise in shadow boxing." *See id.* In *Camino, Inc. v. Wilson*, a federal district court, without any explanation of its methodology, selected 13.15% as its discount rate. 59 F. Supp. 2d 962, 970 (D. Neb. 1999). In that case, however, the court defended its selection by stating that the rate was "accepted by all the experts as reasonable." *Id.* at 976.

TABLE 17: DISCOUNT FACTOR: NON-DELAWARE CASES

	PRICE EARNINGS RATIO	CAPITAL ASSET PRICING MODEL ⁽¹⁾	WEIGHTED AVERAGE COST OF CAPITAL ⁽¹⁾	CAPITAL ASSET PRICING MODEL OR WEIGHTED AVERAGE COST OF CAPITAL ⁽²⁾
PERCENTAGE	78%	11%	11%	22%
FRACTION	7/9	1/9	1/9	2/9

⁽¹⁾In all cases recorded under the "Weighted Average Cost of Capital" column, courts used the capital asset pricing model to establish the cost of equity. These cases are reported in the "Weighted Average Cost of Capital" column and are not included in the "Capital Asset Pricing Model" column.

⁽²⁾Because the capital asset pricing model is used to compute the cost of equity capital in the weighted average cost of capital method, the combined use of the two methods is reported in this column.

Comparing the data from Table 16 with data from Table 17, one sees that Delaware courts are more likely than non-Delaware courts to use discount rates rooted in the capital asset pricing model (53% in Delaware cases; 22% in non-Delaware cases). Non-Delaware courts, on the other hand, rely more heavily on price-earnings ratios as a basis to calculate discount rates (78% in non-Delaware cases; 47% in Delaware cases).

Table 18 displays only Delaware cases decided since January 1, 1991.

**TABLE 18: DISCOUNT FACTOR: DELAWARE CASES
AFTER JANUARY 1, 1991**

	PRICE EARNINGS RATIO	CAPITAL ASSET PRICING MODEL ⁽¹⁾	WEIGHTED AVERAGE COST OF CAPITAL ⁽¹⁾	CAPITAL ASSET PRICING MODEL OR WEIGHTED AVERAGE COST OF CAPITAL ⁽²⁾
PERCENTAGE	39%	15%	46%	61%
FRACTION	5/13	2/13	6/13	8/13

⁽¹⁾In all cases recorded under the "Weighted Average Cost of Capital" column, courts used the capital asset pricing model to establish the cost of equity. These cases are reported in the "Weighted Average Cost of Capital" column and are not included in the "Capital Asset Pricing Model" column.

⁽²⁾Because the capital asset pricing model is used to compute the cost of equity capital in the weighted average cost of capital method, the combined use of the two methods is reported in this column.

Comparing now Table 18, later Delaware cases, to Table 16, all Delaware cases since *Weinberger*, one sees a slightly higher percentage of later Delaware cases that utilize a discount rate rooted in the capital asset pricing model (53% in all Delaware cases; 61% in later Delaware cases).

Summarizing the data in Tables 15 through 18, one finds that Delaware courts in a majority of their decisions utilize the capital asset pricing model as a way to determine the discount rate, and the available data indicate that the use of the capital asset pricing model may even be increasing in Delaware. Other jurisdictions, however, continue principally to construct discount rates by reference to price-earnings ratios of comparable companies.¹²³

One should expect courts to continue and perhaps to increase their reliance on the capital asset pricing model. Two reasons support this prediction. First, notwithstanding the debate about certain aspects of the capital asset pricing model, the theory is, as Dean Thompson states, "intuitively appealing".¹²⁴ It seems to make sense that the market would demand a return only (or mostly) for systematic risk and that the amount of return the market demands for systematic risk for the particular company can be estimated by the return the market demands in similar systematic risk situations.¹²⁵ Brealey and Myers state that "[i]t will be very hard to reject the CAPM beyond all reasonable doubt."¹²⁶

Second, the capital asset pricing model is accessible to judges. It "captures these ideas [i.e., ideas respecting risk and return about which there is broad agreement] in a simple way . . .".¹²⁷ For courts, it is not difficult to build a discount rate pursuant to the capital asset pricing model by adding the riskless rate of return to the historical rate of return on a market basket of stock times a stock's beta.¹²⁸ Such simplicity and the appearance of objectivity, especially when dealing with matters that are apparently so complex and judgmental, will always be attractive to courts.

123. See *supra* Tables 15-18.

124. Thompson, *supra* note 14, at 520.

125. Thus, Brealey and Myers state that "all financial economists agree . . . [that] [i]nvestors . . . appear to be concerned predominately with the risk that they cannot eliminate by diversification." BREALEY & MYERS, *supra* note 15, at 195.

126. *Id.* at 188.

127. *Id.* at 184.

128. *Id.* at 181.

IV. CONCLUSIONS FROM THE DATA

The *Weinberger* decision in 1983 encouraged the hope that modern finance theory would become the basis for court valuations in acquisition cases. Unfortunately, the data from this article suggest that hope has not been realized.

Most obvious in this regard are the under use of the discounted cash flow methodology by courts and the overuse by courts of other inappropriate methodologies, such as an asset valuation or a weighted average valuation. To repeat what may be the most important data, only 31% of all cases from all jurisdictions decided since *Weinberger* were based on the discounted cash flow methodology.¹²⁹ On the other hand, 20% of the cases during that time period were decided under the asset valuation method, and 30% of the cases were decided under the weighted average method.¹³⁰

The Delaware numbers are somewhat better, showing that 49% of the Delaware cases since *Weinberger* were decided under the discounted cash flow method, while 19% were based on an asset valuation and 14% were based on a weighted average methodology.¹³¹

It is impossible, however, to square these data, even the somewhat better Delaware data, with an appropriate use by courts of modern finance theory. Considering, first, the levels of use of the discounted cash flow method reflected in the data, financial economists agree that the value of an asset is determined by anticipated cash flows, discounted to reflect the time value of money and risk,¹³² and certainly it is difficult to argue with the psychological and behavioral underpinnings for this methodology. What an asset is worth in the marketplace is determined by what it will earn in the future, but because of the opportunity cost of capital and the volatility risk of the potential earnings, the market will pay less for the asset than the sum of the stream.¹³³ None of this, when properly understood, seems controversial.

On the other hand, the levels of use of asset valuation and the weighted average valuation by courts are problematic on a number of fronts. The asset valuation method, as described earlier, is inconsistent with the legal rule that valuation in fair price and fair value cases must

129. See *supra* Table 1, at 14.

130. See *supra* Table 1, at 14.

131. See *supra* Table 4, at 17.

132. See *supra* notes 16-18 and accompanying text.

133. See *supra* notes 19, 30.

amount to the going concern value.¹³⁴ This rule – rejecting a liquidation value in favor of a going concern value – is entirely consistent with the *ex ante* expectation of investors, who invest expecting managers to conduct the affairs of the corporation in a reasonable fashion and to generate corporate earnings against which the investors have a claim.¹³⁵ As a result, in nearly all cases investors expect their future value to be measured by on-going operations of the company and certainly not by any lesser amounts generated by the sale of the underlying net assets. Indeed, it is difficult to imagine when value in an acquisition case might appropriately be based on the company's asset value.¹³⁶

The weighted average method, more specifically, the Delaware block approach, has been subjected to extensive and unanswered criticism over the years.¹³⁷ While such theoretical criticisms are generally valid, it is the weighting of the various components of a weighted average approach that most vividly exposes the fundamental flaws and misdirection of the methodology. No one has ever provided a satisfactory standard for assigning weight to the factors used in a weighted average valuation.¹³⁸ This failure is the inevitable result of the disconnect between the factors and their assigned weights under the Delaware Block approach, on the one

134. This is a long standing rule in Delaware. See, e.g., *Tri-Continental Corp.*, 74 A.2d at 72. It continues today. See, e.g., *In re of Shell Oil Co.*, 607 A.2d at 1218; *Rapid-Am. Corp. v. Harris*, 603 A.2d 796, 799 (Del. 1992).

135. See Campbell, *supra* note 8, at 139-49.

136. Theoretically, the only time an asset methodology, as opposed to a discounted cash flow methodology, should be used to value a company is when the assets of the company are to be sold instantly for a price that is fixed and certain. If the sale is not instantly completed, the expected proceeds must be discounted to reflect the time value of money; if the amount to be received is less than a sum certain, the proceeds must be discounted to accommodate the volatility risk of the proceeds.

Consider, for example, the somewhat unusual cases in which the liquidation value of the company's assets exceeds the going concern value of the company. Although one may anticipate that managers, pursuant to their duty to maximize shareholder wealth, will sell the assets and liquidate the company, the appropriate methodology for valuing the company is nonetheless the discounted cash flow method. The liquidation will not occur immediately, and it is impossible to predict, from within a range of outcomes, exactly what the liquidation will bring. Thus, the liquidation proceeds must be discounted to reflect the time value of money and the volatility risk that associated with the liquidation price.

137. See Calio *supra* note 6.

138. Regarding weighting, one author concludes that "virtually no weighing guidelines exist. The weight assigned to each of the [components of the Delaware block method] . . . is usually reflective of the confidence level or accuracy of each element's valuation . . ." See Calio, *supra* note 6, at 37. To assign weights according to the court's confidence in the accuracy of the particular factor is, at best, sophistry. The fact, for example, that a court can most accurately determine the liquidation value of the corporation says nothing about whether using such a valuation is consistent with the court's obligation. Courts are not obliged to select an improper method of valuation simply because it is easy to calculate.

hand, and the psychological and behavioral bases of economic value, on the other. In short, the factors and the weighting of the factors in a weighted average methodology make sense only to the extent they amount to proxies for the essential elements of value, which elements are broadly agreed to be the future value generated for investors from the investment and the factor by which such future value must be discounted.¹³⁹

It is not, however, just the data reflecting frequency of utilization of various methodologies that show the difficulties courts have in these cases. In fact, even the data from cases in which courts use the preferred methodology, the discounted cash flow method, provide examples of the use of problematic finance theory. For example, the data indicate that in 30% of the cases using some form of the discounted cash flow method, courts discounted historical earnings rather than projected earnings.¹⁴⁰ The data also show courts using various and sometimes theoretically questionable portions of the revenue stream as a basis to arrive at a discounted cash flow valuation.¹⁴¹ One also finds in the data cases in which courts have established discount rates without explanation or apparent principle.¹⁴²

Certainly one should not overlook the fact that some of the data, separately considered, may be encouraging. For example, some may find the increasing use of the capital asset pricing model in discounted cash flow cases to be a positive development.¹⁴³ Also, one might be encouraged by the somewhat higher use of the discounted cash flow in recent periods.¹⁴⁴ This limited amount of favorable data, however, does not overcome the negative aspect of the data considered as a whole. One cannot be encouraged by data indicating that courts in the more recent period continued to use the discounted cash flow in only 37% of their cases while during the same period relying on the weighted average method and the asset valuation method, considered together, in a total of 42% of all cases.¹⁴⁵

When one tries to explain this data and thus to explain the apparent limited progress that has been made in the last twenty years toward the use of modern finance theory in valuation cases, two related factors should be

139. See BREALEY & MYERS, *supra* note 15, at 113-15.

140. See *supra* Table 10, at 31.

141. See *supra* Table 14, at 36. One is, of course, able to find theoretical mistakes in cases from the author's population of cases.

142. See *supra* note 122 and accompanying text.

143. Cf. Table 16 with Table 18, *supra*.

144. Cf. Table 2 with Table 3, *supra*.

145. See *supra* Table 3, at 16.

considered.

The first factor involves the nature of the evidence that parties offer courts in valuation cases. Generally, when examining particular court opinions from the data, one finds too many courts overwhelmed by massive amounts of complex, tedious, technical valuation evidence offered by the parties, evidence that is often so dense that not even the best judges have any realistic chance of sorting through the testimony of the parties' experts and ultimately coming to a sensible conclusion.

Part of the complexity that courts face in these decisions is due to the fact that courts usually are offered multiple valuation methodologies in each case.¹⁴⁶ Thus, in useable cases from the data, courts on average were presented a total of 2.4 evaluation methodologies per case.¹⁴⁷ In 43% of the cases, courts were presented with a total of three or more valuation methodologies that they were required to sort through,¹⁴⁸ and in only 23% of the cases were courts offered a single valuation methodology by the parties. Indeed, in 56% of the useable cases, at least one of the parties itself offered more than one valuation method to the court in support of its position on value.¹⁴⁹

146. Complexity can, of course, be caused or exacerbated by other factors. *E.g.*, *Swope v. Siegel-Robert, Inc.*, 74 F. Supp.2d 876 (E.D. Mo. 1999). This case may represent the outer edge of extreme complexity. The dissenters offered evidence of valuation under three different parameters: first, that no minority or non-marketability discount was to be included in fair value; second that a minority discount would apply; and, finally, that both a minority discount and a non-marketability discount would apply. *Id.* at 887. Under each parameter, dissenters then offered three valuation methodologies. *Id.* To complicate matters further, two of the methodologies offered by the dissenters' expert were applied separately to each of Siegel-Robert's six segments, and one of those methodologies applied separately to each segment was comparative ratio method based on six ratios. *Id.* at 890. The third methodology used by the dissenters' expert was applied at the holding company level. *Id.* at 910.

147. This average is based upon 53 useable cases. As indicated previously, the data is extracted from 76 cases decided since *Weinberger*. From that total, only 53 were considered useable on the matter of offerings by the parties.

148. This is based upon 53 useable cases. In 23 of those cases the plaintiffs and defendants offered the court a total of at least three evaluation methodologies. *See* Appendix.

149. This is based on 53 useable cases, and in 29 of those cases, at least one of the parties offered more than one valuation methodology to the court. *See* Appendix.

An example of a single party offering multiple evaluation methodologies in support of its position was *Kahn v. Tremont Corp.*, a case in which the court was required to evaluate the fair price of a merger under five different methodologies offered by one party. No. CIV.A. 12339, 1996 WL 145452, at *5 (Del. Ch. Mar. 21, 1996). The methodologies were the discounted cash flow method, the asset valuation method, the deal value method, the comparative ratio method and a method based on the company's market value. Without selecting the appropriate valuation method, the Chancery Court found that all five of the methodologies supported the conclusion that the exchange price was fair. *Id.* at *14.

One should not be surprised to find that the parties as between themselves offer different methodologies to the court. Each party, operating under the flexibility of a *Weinberger* regime, will offer the court the valuation methodology that enhances its own chances of an outcome favorable to itself. One might expect that the methodology that supports the highest possible value (the plaintiff's position) and the lowest possible value (the defendant's position) are often different, and the data are consistent with that conclusion.

For at least two reasons, a single party may feel it advantageous to offer the court more than one valuation methodology. First, a party may see its chances of a court's accepting its particular estimate of value enhanced if the party supports its valuation under multiple theories. So the party may say, essentially: "I propose that the company is worth \$100 per share, and here are three evaluation methodologies, each of which supports a valuation of at least \$100 per share."¹⁵⁰ Alternatively, a party may have no good idea of which methodology is the court's favorite or may conclude from past decisions that the court uses different methodologies, depending on the facts of the case, or, perhaps more disturbing, may conclude that the court selects different valuation methodologies without any evidence of a discernable principle. Once again, therefore, a logical strategy in such a circumstance is for a party to present multiple valuation methodologies in the hope that at least one of the methodologies will appeal to the court.¹⁵¹

In addition to the overwhelming complexity of the evidence, courts often face evidence offered by opposing, well paid, highly credentialed¹⁵² experts whose opinions may be rendered essentially incredible by the differences between their respective estimates of value. These differences

Even in cases in which no party offered more than one of the methodologies categorized by this article, when parties proposed a weighted average method of valuation, courts were faced with evaluating multiple methodologies within that single, weighted average methodology. An example of this was *Neal v. Alabama By-Products Corp.*, where the petitioner weighed values derived from the comparative ratio method, the asset value method and the discounted cash flow method. 1990 WL 109243, *6.

150. See, e.g., *Kahn*, 1996 WL 145452. In a fair price case, the company's expert used five valuation methods, each of which, according to the testimony, supported its contention that the price offered was fair. *Id.* at *11.

151. Unfortunately, none of these pressures that compel parties to offer courts multiple valuation methodologies shows any sign of abatement. Indeed, data indicate that courts in more recent cases actually face even slightly more valuation offerings than they did in earlier cases.

152. For example, the court in *Onti Inc. v. Integra Bank*, described the credentials of one expert: "Since 1988, . . . [he] has been on the faculty of the Harvard Graduate School of Business and is currently the Willard Prescott Smith Professor of Corporate Finance at that school. Prior to that he taught finance at Sloan School of management at the Massachusetts Institute of Technology for seven years." 751 A.2d 904, 908 (Del. Ch. 1999).

in value estimated by the competing experts can in some cases be significantly different¹⁵³ and in other cases be wildly different.¹⁵⁴

In his fine article on appraisal actions, Professor Barry Wertheimer provides information regarding the valuation estimates offered by the competing parties in 41 appraisal cases decided after 1984.¹⁵⁵ From Professor Wertheimer's cases that were useable for this paper,¹⁵⁶ the value estimate offered by the dissenting shareholder was on average 5.6 times higher than that offered by the corporation.¹⁵⁷ The widest differences one finds are in *Campbell v. Caravel Acad. Inc.*,¹⁵⁸ *TV58 Ltd. Partnership v. Weigel Broadcasting Co.*,¹⁵⁹ and *Ely, Inc. v. Wiley*,¹⁶⁰ where the estimates of value by the dissenting shareholders were, respectively, 612 times, 32 times and 16 times that of the corporations'.

A court, therefore, may face the difficult task of determining the present value of a company involved in an acquisition without evidence that it finds intelligible and credible. Not surprisingly, therefore, one finds in the cases from the data judicial expressions of frustration about the complexity of evidence,¹⁶¹ the multiplicity of methodologies offered by the parties¹⁶² and the outlandishness of the estimates of value offered by

153. In *Swope v. Siegel-Robert, Inc.*, the dissenter's expert estimated value of the company at an amount (\$862 million) that was 58% higher than the company's expert estimate of value (\$622). 74 F. Supp. 2d at 922.

154. See *infra* notes 157-60 and accompanying text.

155. Wertheimer, *supra* note 8, at 713-14.

156. Thirty-four of Professor Wertheimer's cases were useable on this point.

157. For the purpose this calculation, the case of *Campbell v. Caravel Acad., Inc.*, was excluded, because the dissenting shareholder offered the court a valuation that was 612.2 times higher than the company. No. CIV.A. 7830, 1988 WL 63492, at *6 (Del. Ch. June 16, 1988), *aff'd*, 553 A.2d 638 (Del. 1988). Such extremeness in the offerings would seem to distort the average. With *Campbell* in the cases, dissenting shareholders offering of value was 23.4 times that of the company (without *Campbell* it was 5.6 times).

158. See *id.* at *4-5.

159. See 1993 WL 285850 at *1.

160. 546 N.W.2d 218, 220 (Iowa Ct. App. 1996).

161. In commenting on the general complexity of the valuation evidence before it and the difficulties caused by such complexity, the chancellor in *Harris v. Rapid-Am. Corp.*, No. CIV.A. 6462, 1990 WL 146488, at *8 (Del. Ch. Oct. 2, 1990), *aff'd in part, rev'd in part, remanded*, *Rapid-Am. Corp. v. Harris*, 603 A.2d 796 (Del. Ch. 1992), remarked that "there are only so many days in the year" available for it to sort out all of the complexities in such cases. *Id.* at *8. The same court later admitted or, perhaps, lamented, that it did "not have the expertise or the resources to carefully scrutinize every turn and twist in petitioners' analysis." *Id.* at *10.

162. See, e.g., *Pinson v. Campbell-Taggart, Inc.*, No. CIV.A. 7499, 1989 WL 17438, at *7-8 (Del. Ch. Feb 28, 1989) ("it is problematic enough to decide between even two conflicting appraisals. To be confronted with eight of them boggles the mind. . . ."). On the other hand, courts at times express satisfaction when they face only a single valuation methodology. See, e.g., *Grimes v. Vitalink Communications Corp.*, No. CIV.A. 12339,

competing experts.¹⁶³

The second point worth considering in connection with the data is that, twenty years after *Weinberger*, we have very little common law respecting valuation. This is due principally to the extreme breadth of discretion that courts in a *Weinberger* regime have when they select the valuation methodology to be used in a particular case. In such a regime, the common law has little opportunity to develop.

When a court faces its first case under a *Weinberger*-type regime, it is free to choose from among any methodology offered by the parties, so long as that methodology is within the very broad limitations of *Weinberger*, which require only that the methodology be one that is "generally considered acceptable in the financial community."¹⁶⁴ The same exceedingly broad standard is applicable when the court selects its valuation methodology in its second case.¹⁶⁵ As a result, even if the court in its first case were to select the discounted cash flow method and employ the capital asset pricing model as a basis for determining its discount rate, the court in the second case could decide to use the weighted average method and calculate its earnings value component using historical earnings and its discount rate under the price-earnings method.¹⁶⁶ Essentially, under a *Weinberger* regime, the methodology selection in first case is not precedent for the second case.

In addition to the fact that almost no common law develops under this regime, another related and insidious result is that the parties in the second case have the same incentives as they did in the first case to introduce complex and extreme evidence of value. Nothing has changed because of the court's opinion in the first case. Thus the parties in the second case,

1997 WL 538676, at *1 (Del. Ch. Aug. 26, 1997) ("That the parties have agreed to the use of a single valuation method significantly eases this Court's burden of determining fair value of Vitalink . . .").

163. See *Charlip v. Lear Siegler, Inc.*, 1984 WL 8248, at *2. Where the dissenters' expert claimed the value of the stock in question was \$22.46 per share and the company's expert valued the stock at \$0.545 per share, the court responded by observing that "[t]he breadth of the dispute . . . [between the experts] tends to border on the absurd" *Id.* at *2. In a more literary expression of such frustration, the judge in *Gilbert v. MPM Enterprises, Inc.*, characterized the competing experts valuation testimony as follows: "[o]ne report is submitted by Dr. Pangloss, and the other by Mr. Scrooge." 709 A.2d at 667. See also, *Gonsalves v. Straight Arrow Publishers, Inc.*, No. CIV.A. 8474, 1996 WL 696936, at *1 (Del. Ch. Nov. 27, 1996), *rev'd on other grounds*, 701 A.2d 357 (Del. Ch. 1997) ("The case presented rather a typical appraisal trial in the sense that the dynamics of the judicial appraisal process tend to produce opinion evidence of absurdly differing values.").

164. *Weinberger*, 457 A.2d at 713.

165. *Id.* at 713.

166. *Id.*

once again and for the same reasons as in the first case, are impelled to offer complex, tedious and extreme evidence of valuation, again complicating the work of the court in its second case and again making it more difficult for the court to reach a satisfactory result.

This cycle will continue to repeat itself, since in the third and all future cases the parties have the same incentives to repeat the same litigation strategies by offering the court overwhelming amounts of complex and extreme evidence of value.

To break this cycle, courts must abandon a regime of extreme flexibility generated by cases such as *Weinberger* and begin to establish clear and sensible valuation rules to be applied in all cases. A regime of rules, as contrasted to a regime of extreme flexibility, is essential if we are to extricate ourselves from the present judicial quagmire and permit the common law to develop sensibly in this area.¹⁶⁷

This regime of rules, in turn, should be based on broadly agreed upon concepts derived from modern finance theory. Thus, as a starting point, courts should adopt the discounted cash flow methodology as the valuation theory to be used in acquisition cases.¹⁶⁸

Moving to more specific parts of valuation theory, and focusing first on cash flows, courts should rule that future and not historic cash flows are the basis for valuations, that cash flows should not be computed based on GAAP principles, that cash flows must include the proceeds anticipated from the sales of assets, and that, in determining the value of a shareholder's interest in a corporation, cash flows include only amounts to which the shareholder is entitled.¹⁶⁹

On the discounting side of the equation, financial economists also agree broadly that the stream of anticipated cash flows must be discounted to reflect the time value of money and risk¹⁷⁰ and that, normally, the time value of money is computed by reference to the return on government

167. A recent amendment to the Model Business Corporation Act states that fair value in appraisals is determined "using customary and current valuation concepts and techniques generally employed for similar businesses in the context of the transaction requiring appraisal . . ." Model Bus. Corp. Act. § 13.01(4) (ii). This language may be read to support the continuation of a regime of extreme flexibility. On the other hand, if financial economists broadly agree that the discounted cash flow is the preferred valuation method, the language should not preclude adoption of that methodology in valuation cases. The language should in no case be read as discouraging the development of concrete rules of valuation that are consistent with broadly agreed upon modern finance theory.

168. *Id.*

169. See *supra* note 29 and accompanying text.

170. See *supra* notes 30-37 and accompanying text.

securities.¹⁷¹ Once again, these are appropriate rules for courts to adopt.

One does, however, encounter significant economic debate about risk and the proper way to calculate a risk premium, but even here one, once more, finds areas of theoretical agreement among most financial economists.¹⁷²

In addition to a significant amount of broad theoretical agreement about risk, we also have, as previously indicated, an enormous amount of historical data about risk and specifically about the return the market has over a long period of time required for certain types of risk.¹⁷³ Courts pondering the matter of an appropriate risk premium can easily determine, for example, that over the last seventy years or so, the average risk premium has been about 2% on corporate bonds, 8.4% on the S&P 500 and 13.7% on small corporations.¹⁷⁴

Establishing a regime of rules informed by modern finance theory would have a dramatic and positive impact on the way valuation matters in acquisition cases are handled. The most obvious change, of course, would be in the 69% of the cases that, historically at least, are determined under theories other than the discounted cash flow method.¹⁷⁵

Under this regime, courts also should face a more manageable task in valuation cases. The parties' evidence would necessarily focus on estimates of cash flows and discount rates. As a result, evidentiary and value estimation disputes between the parties on the matter of cash flows, for example, may involve the probability of war¹⁷⁶ or the probability that a brand of beer may increase in popularity in ensuing years.¹⁷⁷ While these

171. See *supra* note 39 and accompanying text.

172. See *supra* notes 55-62 and accompanying text.

173. See *supra* note 63 and accompanying text.

174. See *supra* notes 60-62 and accompanying text.

175. See *supra* notes 8, 10-12 and accompanying text.

176. The allusion here is to the old proceedings surrounding the reorganization of the Atlas Pipeline Corporation. See *In re Atlas Pipeline Corporation*, 39 F. Supp. 846 (W.D. La. 1941). In the course of the reorganization of Atlas under federal bankruptcy rules, the Securities and Exchange Commission rendered an advisory opinion to the court on whether the proposed plan met statutory standards. *Id.* at 846. The Commission's advisory opinion, in turn, was based on its valuation of Atlas as a going concern. See, *In re* of Atlas Pipeline Corporation, 9 S.E.C. 416 (1941). It turned out that the Commission's opinion substantially undervalued Atlas, apparently because the Commission underestimated the probability that the United States would enter World War II and the impact it would have on an oil refining company, such as Atlas. See generally, VICTOR BRUDNEY & WILLIAM W. BRATTON, BRUDNEY AND CHIRELSTEIN'S CORPORATE FINANCE CASES AND MATERIALS 6-32 (4th ed. 1993).

177. The allusion here is to the *Cooper v. Pabst Brewing Co.* No. CIV.A. 7244, 1993 WL 208763, at *3 (Del. Ch. June 8, 1993). In that case, one of the party's experts offered a valuation based on the assumption "that the volume of Pabst's sales would increase by 1.5%

examples show that courts will continue to have difficult judgments to make in valuation cases, the examples also suggest that the judgments courts would be asked to make under such a regime of rules would tend to involve more of the types of decisions that courts are able to handle and, indeed, the types of decisions that historically they have always made.

None of this is possible, however, until courts turn their backs on the regime of extreme flexibility generated by cases such as *Weinberger* and develop a common law of valuation informed by modern finance theory.

V. APPENDIX

The following table, TABLE: POPULATION OF CASES, lists all the cases upon which the data in the article are based. In the event more than one court considered a case, as, for example, where a case was appealed, the opinion of each court is considered and reported separately.

Under the heading of “Parties” in the TABLE: POPULATION OF CASES, the following abbreviations and symbols are used to report the valuation methodologies offered by the parties in the particular case:

“DCF” (Discounted Cash Flows) – A valuation methodology based principally on the discounted value of the company’s projected cash flows.

“A/V” (Asset Value) – A valuation methodology based principally on the liquidation value of the company’s net assets.

“D/V” (Deal Value) – A valuation methodology determined by reference to prices paid in other acquisitions.

“CmpRto” (Comparative Ratios) – A valuation methodology based principally on one or more key financial ratios from actively traded comparable companies.

“WtAv” (Weighted Average) – A valuation methodology that considers various factors or methods of valuation and assigns a weight to each factor.

“Otr” (Other Valuation Methodologies) – A category for any valuation method other than the five methods described above.

Where no entry appears, the particular methodology was not offered by the party or was unreported in the opinion.

Under the heading of “Courts”, the TABLE: POPULATION OF CASES uses the same abbreviations for valuation methodologies as was used under the heading of “Parties”. In addition, under the heading of “Courts”, the following abbreviations and symbols are used:

“Acpt” (Accepted) – The valuation methodology accepted by the court. Where no entry appears, the court was not required to select a methodology or the selection was unreported by the opinion.

“Discount Rate” (Discount Rate) – The methodology the court employed to construct its discount or capitalization rate. Where no entry appears, the court did not use a discount rate or its methodology was unexplained. The data in this column include cases in which a court used DCF and cases where a court used a methodology, such as WtAv or CmpRto, in which one of the components of the valuation methodology included a discounting of earnings. Methodologies used to determine discount rates in this column include:

“CAPM” (capital asset pricing model) – A discount rate constructed by use of the capital asset pricing model.

“p/e” (price/earnings ratio) – A discount rate constructed by using the price earnings ratios from comparable companies.

“WACC” (weighted average cost of capital) – A discounted rate constructed by using the weighted average cost of capital method. In all cases reported as WACC, the court used CAPM to calculate the company’s cost of equity.

“+/-% MergPr” – The percentage increase (“+”) or decrease (“-”) of the court’s award over the original acquisition price offered by the company. This column remains blank in instances in which the matter is not an issue in the case or in which the court did not give sufficient information to make the calculation.

TABLE: POPULATION OF CASES

<u>Case Names and Citations</u>	<u>Parties</u>						<u>Courts</u>		
	<u>DCF</u>	<u>A/V</u>	<u>D/V</u>	<u>Cmp Rto</u>	<u>Wt Av</u>	<u>Otr</u>	<u>Acpt</u>	<u>Discount Rate</u>	<u>+/-% MergPr</u>
1. CEDE & Co. v. Technicolor, Inc., No. CIV.A. 7129, 1999 WL 65042 (Del. Ch. Jan. 29, 1999).							DCF		
2. Sieg Co. v. Kelly, 568 N.W.2d 794 (Iowa 1997).	X	X		X			CmpRto		+1.77
3. Sieg Co. v. Kelly, 512 N.W.2d 275 (Iowa 1994).				X			CmpRto		+44 and +90
4. <i>In re</i> Valuation of Common Stock of McLoon Oil Co., 565 A. 2d 997 (Me. 1989).	X	X					WtAv A/V		+260
5. Paskill Corp. v. Alcomat Corp., No. CIV.A. 16221, 1999 WL 438832 (Del. Ch. June 16, 1999).		x					A/V		+6
6. CEDE & Co. v. Technicolor, Inc., No. CIV.A. 7129, 1990 WL 161084 (Del. Ch. Oct. 19, 1990).	X						DCF	WACC	
7. Harris v. Rapid-Am. Corp., No. CIV.A. 6462, 1990 WL 146488 (Del. Ch. Oct. 2, 1990).	X		X	X		X	CmpRto		+82
8. Rapid-American Corp. v. Harris, 603 A.2d 796 (Del. 1992).							CmpRto		
9. Harris v. Rapid-American Corp., No. CIV.A. 6462, 1992 WL 69614 (Del. Ch. March 20, 1992).							CmpRto		+162
10. Kahn v. Household Acquisition Corp., No.		X	X	X			A/V		+21

[illegible]

<u>Case Names and Citations</u>	<u>Parties</u>						<u>Courts</u>		
	<u>DCF</u>	<u>A/V</u>	<u>D/V</u>	<u>Cmp Rto</u>	<u>Wt Av</u>	<u>Otr</u>	<u>Acpt</u>	<u>Discount Rate</u>	<u>+/-% MergPr</u>
Enter., Inc., 709 A.2d 663 (Del. Ch. 1997).	X			X	X		DCF	WACC	N/A
50. McLane Gas Co. v. Enserch Corp., No. CIV.A. 10760, 1992 Del. Ch. LEXIS 260 (Del. Ch. Dec. 9, 1992).	X				X		DCF	WACC	+0.27
51. Sarrouf v. New England Patriots Football Club, Inc., 492 N.E.2d 1122 (Mass. 1986).							A/V		+433.33
52. Swope v. Siegel-Robert, Inc., 74 F. Supp. 2d 876 (E.D. Mo. 1999).					X X		WtAv	WACC	+216.8
53. Chokel v. First Nat'l Supermarkets, Inc., 660 N.E.2d 644 (Mass. 1996).							WtAv	p/e	+22.8
54. Camino, Inc. v. Wilson, 59 F. Supp. 2d 962 (D. Neb. 1999) (applying Neb. Law).	X	X				X	DCF A/V		+37.4
55. Ryan v. Tad's Enter., Inc., 709 A.2d 682 (Del. Ch. 1996).	X				X X X		DCF	CAPM	+80.1
56. Security State Bank, Hartley, Iowa v. Ziegeldorf, 554 N.W.2d 884 (Iowa 1996).	X	X		X		X	DCF	p/e	+30.0 +56.4
57. Elk Yarn Mills v. 514 Shares of Common Stock of Elk Yarn Mills, Inc., 742 S.W.2d 638 (Tenn. Ct. App. 1987).					X		WtAv	p/e	
58. Oakridge Energy, Inc. v. Clifton, 937 P.2d 130 (Utah 1997).		X			X	X	WtAv		
59. Associated Imports,					X		WtAv	p/e	

<u>Case Names and Citations</u>	<u>Parties</u>						<u>Courts</u>		
	<u>DCF</u>	<u>A/V</u>	<u>D/V</u>	<u>Cmp Rto</u>	<u>Wt Av</u>	<u>Otr</u>	<u>Acpt</u>	<u>Discount Rate</u>	<u>+/-% MergPr</u>
69. M.P.M. Enter., Inc. v. Gilbert, 731 A.2d 790 (Del. 1999).	X		X	X	X		DCF	WACC	
70. <i>In re Spang Indus., Inc.</i> , 535 A.2d 86 (Pa. Sup. Ct. 1987).							WtAv		
71. Independence Tube Corp. v. Levine, 535 N.E.2d 927 (Ill. App. Ct. 1988).	X				X	X			+10
72. Hunter v. Mitek Indus., Inc., 721 F. Supp. 1102 (E.D. Mo. 1989).	X		X						
73. Davis-Eisenhart Marketing Company, Inc. v. Kroger Baysden, 539 N.W.2d 149 (Iowa 1995).							Otr		
74. Pinson v. Campbell-Taggart, Inc., No. CIV.A. 7499, 1989 WL 17438 (Del. Ch. Feb. 28, 1989).	X	X	X				WtAv	p/e	+45.6
75. Perlman v. Permonite Mfg. Co., 568 F. Supp. 222 (N.D. Ind. 1983).							A/V		
76. Forsythe v. Standard Oil Co., 534 N.E.2d 119 (Ohio Ct. Com. Pl. 1989).							Otr		-9.3